

Family Sphyraenidae

2725

Body greatly elongate, partly terete. Head very long, pointed. Mouth cleft horizontal. Jaws elongate, lower protruded conspicuously, non-protractile upper formed by premaxillaries and behind by broad maxillaries. Teeth large, fang like, unequal, implanted in sockets in both jaws and on palatines, none on vomer. Opercular bones without spines or serratures. Gill openings wide, membranes not united, free from isthmus. Gills 4, slit behind fourth. Pseudobranchiae well developed. Branchiostegals 7. Air bladder large, bifurcate in front. Pyloric appendages numerous. Scales small, cycloid. Head scaly on top and on sides.

Lateral line well developed, straight. First dorsal over ventrals, with 5 strong spines. Second dorsal well back of first, like anal and opposite. Caudal forked. Pectoral short, low, within or below body axis. Ventral abdominal, before middle in body, with spine and 5 rays.

Large active, carnivorous, pike like fishes, very voracious. They live in warm seas and many value as food.

In his work on the California Barraenda Lionel A. Walford has given a good bibliography of the fishes of this family:

'Contrib. no. 112 Cal. State Fisher. Lab., pp. 75 to 104, 1932.

2727

Genus Sphyraena Rosé

Sphyraena Rosé, Arted. Nov. Pisc.,
ed. 2, p. 52, 1793. (Atypic.) (Type
Exox sphyraena Linnaeus, affixed by
Jordan and Evermann, Genera of
Fishes, pt. 1, p. 52, 1917.) — Klein,
Gesells. Schauplatz, vol. 6, p. 464,
1778. (nomenclatorial.) (Type Exox
sphyraena Linnaeus, affixed by
Jordan and Evermann, Genera of
Fishes, pt. 1, p. 43, 1917.)

Sphaerina Swanison, Nat. Hist. Animals,
vol. 2, p. 175 (242), 1839. (Type Sphaerina
europaea Swanison = Exox sphyraena
Linnaeus, monotypic.)

Agriosphyraena Fowler, Proc. Acad.
Nat. Sci. Philadelphia, p. 749, 1903.
(Type Exox barracuda Walbaum, orthotypic.)
Agriosphyraena Boulenger, Zool. Record,
Pisces, p. , 190. (Type Exox barracuda

Walbaum, virtually, as Agriosphyraena
Boulenger proposed as emendation for
Agriosphyraena Fowler.)

Body very elongate. Head usually large. Snout long, conic, pointed. Eye large, median, high. Mouth large. Strong, sharp, unequal teeth in both jaws and on palatines, some on pterygoids, none on vomer; usually large, sharp canine near lower jaw tip. Gill rakers very short or obsolete. Scales moderate or small. Second dorsal with 1 or 2 flexible spines in front and 8 or 9 divided rays. Anal origin opposite or behind second dorsal origin, fin of 1 or 2 flexible spines and 7 to 9 divided rays. Pectoral origin before first dorsal origin. Ventral origin before, below or behind first dorsal origin.

Circumtropical seas.

Anthias squamipinnis (Peters).

Serranus (Anthias) squamipinnis Peters,

Monatsh. Akad. Wiss. Berlin, 1855, p. 429.

Mozambique.

Anthias squamipinnis Günther, Cat.

Fishes Brit. Mus., vol. 1, 1859, p. 89

(copied). — Klunzinger, Verh. zool. bot.

Gesell. Wien, vol. 20, 1870, p. 706 (Koseir,

Red Sea). — Boulenger, Cat. Fishes Brit.

Mus., vol. 1, 1895, p. 329 (copied). — Borsieri,

Ann. Mus. Civ. Genova, vol. 41, 1904, p. 193

(Gulf of Zula, Red Sea). — Regan, Ann.

Durban Mus., vol. 1, pt. 5, 1917, p. 458

(Durban). — Barnard, Ann. South Afric.

Mus., vol. 21, 1927, p. 462 (Natal coast).

Anthias (Pseudanthias) squamipinnis

Klunzinger, Fische Roth. Meer., 1884, p. 9,

pl. 3, figs. 1-a. — Sauvage, Hist. Nat.

Madagascar, Poiss., 1891, p. 133, pl. 17,

figs. 1, a-b.

The following are two nominal species, imperfectly described and without status, which are here admitted for reference:

Sphyraena leveriana (Shaw) 2731

Gadus leverianus Shaw, General
Zool., Pisc., vol. 4, pt. 1, p. 153, 1803
(type locality, Southern Ocean). —

Swain, Proc. Acad. Nat. Sci. Philadelphia,
p. 304, 1882 (1883) (reference).

Sphyraena leveriana Whitley, Rec.
Austral. Mus., vol. 18, no. 4, p. 144,
June 29, 1931 (on Shaw; doubtful).

14569. Maculabo Island, southern Luzon. June 14, 1909. Length 140 mm. ¹⁴⁰⁶

12282. Masbate Reef, Masbate Island. April 20, 1908. Length 202 mm.

7232. Masinloc, Zambales. November 22, 1908. Length 409 mm.

6263 and 6267. Medio Island, Galera Bay, Mindoro. June 9, 1908. Length 298 to 338. [110.]

8063 and 16984. Mompoy Island, Cnabuyan Islands. March 3, 1909. Length 150 to 248 mm.

18587. Murcielago Bay, Mindanao. August 21, 1909. Length 132 mm.

6611 and 92508. Northwest Point, Verde Island, southern Luzon. July 22, 1908. Length 208 to 306 mm.

7980. Pagapas Bay. February 20, 1909. Length 312 mm.

Sphyraena dentatus Saville-Kent

Sphyraena dentatus Saville-Kent,
Great Barrier Reef, pp. 293, 370, 1893
(type locality, Moreton Bay) (no
description or figure). —

McCulloch and Whitley, Mem.
Queensland Mus., vol. 8, pt. 2, p.
141, July 7, 1925 (reference). —

McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 121, June 29, 1929
(reference).

4 to 8 basal radiating striae;
circuli fine.

D. X, 17, I or 18, I, tenth spine
 $2\frac{1}{8}$ to $2\frac{4}{5}$ in total head length,
third ray $1\frac{4}{5}$ to $2\frac{1}{8}$; A. III, 10, I, third
spine $2\frac{1}{3}$ to $3\frac{1}{3}$, sixth ray $1\frac{4}{5}$ to $2\frac{1}{8}$;
caudal $1\frac{1}{3}$ to $1\frac{2}{3}$, convex behind;
least depth of caudal peduncle 3 to
 $3\frac{2}{3}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$; ventral $1\frac{2}{3}$
to 2.

Dull reddish brown or terracotta
color. Head, body and fins marked
with round blackish spots, always
greatly less in diameter than
interspaces; in young spots very
large or not more than 4 or 5
along lateral line, with age 18 or
20, also in young spots ocellated
with whitish border.

India, Nicobars, East Indies, Philippines

Analysis of Species

2733

a.¹ Agruopophysaena. Scales large,
80 to 90 in lateral line.

b.¹ Preopercular edge rounded
convexly. barracuda.

b.² Preopercular edge rectangular,
more or less forming extended
rounded flap.

c.¹ Depth 6 to 7.

d.¹ First dorsal origin above or
slightly behind depressed
pectoral tip; eye $2\frac{1}{3}$ in snout.

e.¹ Eye $4\frac{4}{5}$ to 5. langsar.

e.² Eye $5\frac{1}{8}$. chrysotaenia.

d.² First dorsal origin before
depressed pectoral tip; eye 2 in
snout, $4\frac{1}{3}$ to $4\frac{1}{2}$ in head. obtusata.

c.² Depth 8; first dorsal origin slightly
behind depressed pectoral tip;
eye $4\frac{1}{2}$ in head. brachygnathos.

a.² Sphysaena. Scales small, 100 to 150
in lateral line.

2734

f.¹ Preopercular edge broadly rounded.

g.¹ Scales 110 to 120. forsteri.

g.² Scales 123 to 130.

h.¹ First dorsal origin well before pectoral tip, above ventral origin. altipinnis.

h.² First dorsal origin above pectoral tip, somewhat behind ventral origin. jello.

h.³ First dorsal origin well behind depressed pectoral tip, nearly over, or close behind ventral origin.

novae hollandiae.

f.² Preopercular edge rectangular.

i.¹ First dorsal origin well behind ventral origin.

nigripinnis.

i.² First dorsal origin over or slightly before ventral origin. helleri.

Sphyraena barracuda (Walbaum)

Esox barracuda Walbaum, Artedi Pisc.,
vol. 3, p. 94, 1792 (on Barracuda
Catesby, Nat. Hist. Carolin. Bahamas,
vol. 2, p. 1, pl., 1771; type locality
Bahamas).

Sphyraena barracuda Fowler, Proc.
Acad. Nat. Sci. Philadelphia, ^{vol. 79,} p.
264, 1927 (Vigan); New. Bishop
Mus., vol. 10, p. 128, 1928 (New
Guinea, Hawaii, Honolulu, Society
Islands, Hilo, Waikana^a, Tahiti;
type of Sphyraena nodgrassi);
vol. 11, no. 5, p. 325, 1931 (Honolulu).

1435

Depth $2\frac{1}{2}$ to $2\frac{3}{5}$; head $3\frac{1}{8}$ to $3\frac{1}{4}$, width $1\frac{4}{5}$ to 2. Snout $4\frac{1}{2}$ to $4\frac{4}{5}$ in head from snout tip; eye $3\frac{2}{5}$ to 4, much greater than snout, $1\frac{1}{8}$ to $1\frac{1}{5}$ in interorbital; maxillary $\frac{3}{5}$ to $\frac{3}{4}$ in eye, expansion $1\frac{1}{5}$ to $1\frac{1}{3}$ in eye, length $2\frac{1}{5}$ to $2\frac{1}{4}$ in head from snout tip; teeth in narrow villiform bands in jaws, outer row little enlarged; pair of wide set upper front canines, also lower pair, smaller and flaring outward, besides antero-lateral recurved larger canine on each mandibular ramus; small band of villiform teeth on each palatine and patch on vomer; interorbital $3\frac{1}{8}$ to $3\frac{1}{4}$, well convex; hind preopercle edge denticulate; opercular spines 3, lower closer to median and most

Sphyraena sphyraena var. picuda
Schneider, Syst. Ichth. Bloch, p. 110,
 1801 (on Picuda Parra, Prix. Crust.
 Cuba, p. 90, pl. 35, fig. 2, 1787,
 type locality, Havana).

Sphyraena picuda Fowler, Bull. Bishop
 Mus., no. 22, p. 7, 1925 (Guam). —
Duncker and Mohr, Mitteil. Naturh.
 Mus. Hamburg, vol. 42, p. 130, 1926
 (Liebliche Island, New Pomerania;
 New Mecklenburg; Bird Island Bay,
 Admiralty Islands; Dorperspitze
 and north east coast New Guinea).

Anthias pleurotaenia Bleeker.

Anthias pleurotaenia Bleeker, Act. Soc. Sci. Ind. Neerl. (Visch. Amboina), vol. 2, 1857, p. 34, Amboina. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 502 (copied). — Ogilby, Proc. Zool. Soc. London, 1889, p. 153 (Great Barrier Reef). — Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 331 (compiled).

Pseudanthias pleurotaenia Bleeker, Atlas Ichth. Ind. Neerl., vol. 7, 1873-76, p. 17, pl. (9) 287, fig. 1 (Amboina).

Anthias (Pseudanthias) taeniatus

Klunzinger, Fische Roth. Meer., 1884, p. 9, pl. 3, fig. 2. Red Sea.

Cuvier

Sphyraena commersoni ~~Valenciennes~~,
 Hist. Nat. Poiss., vol. 3, p. 352, 1829
 (type locality, "mer des Indes").

— Bleeker, Verh. Batavia. Genoot.
 (Perc.), vol. 22, p. 55, 1849 (Batavia,
 Samarang, Surabaya, Java); (Makura),
 vol. 22, p. 4, 1849 (Kammal); Nat. Tijds.
 ned. Indië, vol. 4, p. 596, 1853
 (Halmaheira); vol. 6, p. 50, 1854
 (Sindangole); vol. 7, p. 227, 1854
 (Macassar), p. 425 (Batavia, Samarang,
 Surabaya, Kammal, Ternate, Sindangole);
 vol. 12, p. 192, 1856 (Ternate); Verh.
 Batavia. Genoot. (Sphyraen.), vol.
 26, p. 15 (Batavia, Samarang, Surabaya,
 Kammal, Sindangole, Ternate); Nat.
 Tijds. ned. Indië, vol. 17, p. 130,
 1858-59 (Atapoepe, Timor). —
Günther, Cat. Fish. Brit. Mus., vol.

Analysis of the species.

a.¹ Third dorsal spine prolonged in filament, at least in adult; caudal deeply emarginate.

b.¹ One or 2 white lines from lower eye edge continued back and below pectoral base and parallel along lower side of tail.

pleurotaenia

b.² Broad white band from lower eye edge out on pectoral base.

squamipinnis

a.² Third dorsal spine not prolonged in filament with age; narrow pale line from eye to pectoral base; caudal little emarginate.

cichlops

c.¹ Caudal truncate, ends little pointed; depth less than 3; no whitish lateral band.

cichlops

c.² Caudal very concave; depth more than 3; diffuse whitish lateral band.

albofasciatus

(- Schmeltz, Cat. Mus. Godeffroy, no. 7, p. 44, 1879 (Viti).)

2, p. 338, 1860 (copied). — Blaber,
Verslag. Akad. Wet. Amsterdam, vol.
12, p. 31, 1861 (Singapore); Ned. Tijds.
Dierk., vol. 1, p. 270, 1863 (Atafupu).
— Schmeltz, Cat. Mus. Godeffroy, no.
4, p. 17, 1869 (Viti Islands). — Day,
Fishes of India, pt. 2, p. 343, 1876.
— Castelnau, Proc. Zool. Acclimat.
Soc. Victoria, vol. 2, p. 102, 1873 (Knob
Island). — Macleay, Proc. Linn. Soc.
New South Wales, vol. 5, pt. 2, p. 33,
1881 (copied). — Day, Fauna British
India, Fishes, vol. 2, p. 336, 1889.
— Sauvage, Hist. Nat. Madagascar,
Poiss., p. 522, 1891 (reference). —
Elera, Cat. Fauna Filipinas, vol. 1,
p. 504, 1895 (Cebu, Luzon, Manila Bay).
— Fowler, Proc. Acad. Nat. Sci.
Philadelphia, p. 501, 1900 (Hawaii), p.
520 (Tahiti). — Snyder, Bull. U.S.

entirely scaled. Dorsals and anals more or less scaly. Lateral line single, complete, tube straight or with ascending tubule extending along nearly entire scale. Dorsal with 10 spines, rays 14 to 18, spinous fin variably longer or shorter than soft fin, fins undivided by notch. Anal short, with 3 spines and 6 to 8 rays. Caudal emarginate. Pectoral rays 17 or 18, fin pointed, sub-symmetrical. Ventral with strong spine, below pectoral, fins close together.

Usually small, brilliant fishes, dainty and brilliant, living in tropical and subtropical seas.

Fish Comm., vol. 23, ^{p. 523,} 1902 (1904)
(Honolulu). — Jordan and Richardson,
Bull. Bur. Fisher., vol. 27, p. 245,
1907 (1908) (Lipari). — Weber,
Siboga Exped., vol. 57, Fische, p. 151,
1913 (Kangeang; Macassar). —
Beaufort, Bijdr. Dierk. Amsterdam,
vol. 19, p. 109, 1913 (Saonek, Waigiu).
— Fowler, Copeia, no. 122, p. 82, November
20, 1922 (Hawaii). — McCulloch and
Whitley, Mem. Queensland Mus.,
vol. 8, pt. 2, p. 141, July 7, 1925
(reference). — McCulloch, Mem. Austral.
Mus., vol. 5, pt. 1, p. 121, June 29, 1929
(reference).

Franzia Jordan and Thompson,
Mem. Carnegie Mus., vol. 6, no. 4, 1914,
p. 251. Type Anthias nobilis Franz,
orthotypic.

Body greatly compressed. Mouth
large, protractile. Maxillary exposed,
without supplemental bone. Jaws
with villiform teeth, intermixed with
curved canines; small group of teeth
on vomer and narrow row on each
palatine; tongue smooth or with few
teeth. Preopercle serrated, without
antrorse teeth on lower edge. Opercle
with 2 or 3 spines. Gill membranes
separate. Pseudobranchiae present.
Gill rakers very long, slender,
close set. Branchiostegals 7. Vertebrae
25 or 26, of which 15 or 16 caudal.
Scales moderate or rather large,
ciliated or smooth. Head partly or

Sphyraena commersonii Castelnau,
 Proc. Zool. Acclimat. Soc. Victoria,
 vol. 2, p. 102, 1873 (North Australia).

Sphyraena commersoni Jenkins,
 Bull. U. S. Fish Comm., vol. 22, p. 438,
 1902 (1903) (Honolulu). — Snyder,
 Proc. U. S. Nat. Mus., vol. 42, p. 495,
 1912 (Olanawa).

Sphyraena dussumieri Cuvier, Hist. Nat.
 Poiss., vol. 7, p. 508, 1831 (type locality,
 Red Sea; Mauritius; Bourbon). —
Günther, Cat. Fish. Brit. Mus., vol.
 2, p. 339, 1860 (Indian Ocean). —
Sauvage, Hist. Nat. Madagascar, Poiss.,
 p. 522, 1891 (reference).

Sphyraena agam (not Rüppell)
Steindachner, Denks. Akad. Wiss. Wien,
 vol. 70, p. 500, 1900 (Honolulu).

Genus Anthias Bloch.

Anthias Bloch, Natürges. Russl. Fische,
vol. 6, pt. 9, 1792, p. 17. Type Labrus
anthias Linnaeus, tantotypic.

Cylopon Rafinesque, Carpat. nuov.
anim. Sicil., 1810, p. 52. Type Labrus
anthias Linnaeus. Cylopon Rafinesque
proposed to replace Anthias Bloch,
supposed to be preoccupied.

Pronotoqrammus Gill, Proc. Acad.
Nat. Sci. Phila., 1863, p. 80. Type
Pronotoqrammus multifasciatus Gill,
monotypic.

Pseudanthias Bleeker, Nat. Tijds.
dierk., vol. 4, 1874, p. 156. Type Anthias
pleurotaenia Bleeker, orthotypic.

Sacura Jordan and Richardson, Proc.
U.S. Nat. Mus., vol. 37, 1910, p. 468.
Type Anthias margaritaceus Hilgendorf,
monotypic.

Sphyraena agam Rüppell

2741

Sphyraena agam Rüppell, Neue
Wirbelth. Fische, p. 99, pl. 25, fig. 2,
1835 (type locality, Red Sea).
— Günther, Cat. Fish. Brit. Mus.,
vol. 2, p. 341, 1860 (copied). — Playfair,
Fishes of Zanzibar, p. 78, 1863 (Zanzibar).
Klunzinger, Verh. zool. bot. Ges. Wien,
vol. 20, p. 822, 1870 (types of Sphyraena
affinis; Koser); Fische Roth. Meer,
p. 129, 1884. — Boulenger, Proc. zool.
Soc. London, p. 240, 1887 (muscat). —
Sauvage, Hist. nat. Madagascar,
Poiss., p. 522, 1891 (reference). —
Steindachner, Denks. Akad. Wiss. Wien,
math.-naturh. Kl., vol. 70, p. 500, 1900
(Honolulu).

lower anal edge and front ventral edge narrowly gray white.

Originally this species was known to Bleeker from only a single example 134 mm. long. Our specimens, though showing much fewer than 52 scales in the lateral line as Bleeker gives, also show a second parallel light line from the eye to the pectoral origin which is not indicated on his figure. Our larger specimen also has a prolonged ventral filament, which Bleeker does not show, besides he does not indicate the numerous fine scales forming a sheath along spinous dorsal base, and those extending out over the soft dorsal and a great part of the paired fins. Our specimens have serrated suprascapulas.

2742

Sphyræna agam Sauvage, Hist.
Nat. Madagascar, Pois., p. 413,
1891 (copies Liénard 1843).

Esox sphyræna (not Linnaeus) Forskål,
Descript. Animal., p. 16, 1775.

Sphyræna affinis Rüppell, heute
Wirbelth. Fisch., p. 98, 1835 (type
locality, Red Sea).

young to 3 in combined head and body to caudal base in adult; caudal $2\frac{1}{5}$ to $2\frac{2}{3}$, deeply concave, with produced filamentous points; ventral 2 to 3; least depth of caudal peduncle 2 to $2\frac{1}{8}$ in total head length; pectoral 1.

Light brown generally, little paler below. Fins all uniformly pale. Two parallel gray white lines from lower eye edge obliquely back to form loop before and over pectoral base; in smaller example upper line broken as spots or dots anteriorly or on postorbital. On trunk and tail below gray white lines also continue parallel at same width from pectoral axil and fade out on tail posteriorly. Iris pale. Upper dorsal edge narrowly, also

2743

Depth $5\frac{3}{5}$ to $8\frac{2}{5}$; head $2\frac{7}{8}$ to $3\frac{1}{3}$, width 3 to $3\frac{3}{4}$. Snout $2\frac{1}{8}$ to $2\frac{1}{4}$ in head from snout tip; eye $4\frac{3}{4}$ to 7, $2\frac{1}{5}$ to $2\frac{3}{4}$ in snout, little greater than to $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye or $\frac{1}{4}$ in eye with age, expansion 3 in eye, length 2 to $2\frac{1}{2}$ in head from snout tip; lower teeth vertically erect; interorbital $4\frac{3}{4}$ to $5\frac{1}{2}$, broad, concave; preopercle edge obtuse or rounded. Gill rakers absent or 0+2, short denticles.

Scales 75 to 85 in lateral line to caudal base and 8 to 10 more on latter; 8 to 12 above, 10 or 11 below, 23 to 30 predorsal, 13 rows on cheeks to preopercle edge. Scales with 50 to 52 basal radiating

striae; circuli fine.

D. V - I, 9 or 10, variably II, 6, second spine $2\frac{1}{2}$ to $3\frac{1}{8}$ in total head length, second branched ray $2\frac{3}{5}$ to 3; A. I, 9 or II, 7, second branched ray 3 to $3\frac{1}{8}$; caudal $1\frac{3}{4}$ to $1\frac{7}{8}$, well forked; least depth of caudal peduncle 4 to $5\frac{1}{4}$; pectoral $2\frac{1}{3}$ to 4; ventral $2\frac{4}{5}$ to $3\frac{1}{4}$.

Dark olivaceous above, sides and below silvery white. Iris white. Fins more or less dusky, lower paler. Dark streak from snout tip through eye to gill opening, most distinct in young. Back of young with 8 large saddle like rings, from front and hind edge of each large dusky spot pendant along median portion of sides. Blotches all very variable, often

disconnected and fading with age.

Indo Pacific. Also in the
tropical Atlantic. Reaches 1830
mm., the largest of the
barracudas.

~~A. R. P. and example. Bombay.~~
~~Prof. H. Mullberg. Bombay Natural~~
~~History Society. Length 275 mm.~~

Singapore, Banka, Cocos, Java, Celebes,
 Vangai, Solow, Halmahera, Ternate,
 Batjan, Amboina, Ceram). — Jordan
 and Snyder, Proc. U. S. Nat. Mus., vol. 23,
 1901, p. 907 (copied). — Jordan and Seale,
 Bull. Bur. Fisher., vol. 25, 1905 (1906), p.
 252 (Lipia and Pago Pago).

Lipogin novemstriatus Rüppell, Neue
 Wirbelth., Fische, 1835, p. 85, pl. 22, fig. 1.
 Massarah, Red Sea.

Cheilodipterus popur Tholliez, Fauna
 Woodlark, 1857, p. 142. Woodlark Island.

9061. Abuyog, Leyte. July 26, 1909. ⁽²⁷⁴⁶⁾
Length 278 mm.

20059. Batangas, Luzon. June 9,
1908. Length 78 mm.

6777, 6778. Bolinao Bay, Luzon.
May 10, 1909. Length 185 to 196 mm.

7877. Cagayan de Jolo. January
8, 1909. Length 865 mm.

19360. Caiholo River, Ulugan Bay,
Palawan. December 29, 1908. Length
220 mm.

9109, 9092. Gigoso Point, Dinapundan
Bay, Samar. July 28, 1909. Length
395 to 396 mm.

8399, 8400. Guint River, Port
Dupon, Leyte. March 16, 1909. Length
380 to 487 mm.

20523. Guinulugan, Negros. April
2, 1908. Length 118 mm.

8 pt. chel. bold caps
Hemiramphidae

208

Oermogenys siamensis, new species.

Figures 83 (head above) and 84.

Depth $7\frac{3}{4}$ to 8; head $2\frac{2}{3}$ to $2\frac{3}{4}$, width $4\frac{1}{4}$ to $4\frac{3}{4}$. Snout 2 to $2\frac{1}{3}$ in head from snout tip; eye $4\frac{1}{2}$ to $5\frac{7}{8}$, 2 to $2\frac{7}{8}$ in snout, $1\frac{1}{3}$ to $1\frac{2}{3}$ in interorbital; maxillary small, reaches eye; each side of mandible with broad cutaneous expansion, widest posteriorly; along under surface of mandible median cutaneous keel wide, extends whole length; narrow band of minute teeth along each jaw edge; interorbital $3\frac{2}{3}$ to $4\frac{1}{8}$ in head from snout tip; beals^K before snout tip 1 to $1\frac{1}{2}$ in head from snout tip. Gill rakers 1 + 6 short low clusters of spinules, longest barely of gill filaments, which 2 in

2747

7622, 7623. Malampaya River
mouth, Palawan. December 26, 1908.
Length 425 to 595 mm.

7414, 7428, 7429. Malochin
Harbor, Linapacan Island.
December 18, 1908. Length 310 to
354 mm.

9073. Malhon Island. July 27,
1909. Length 480 mm.

22547. Manila market, Luzon.
January 13, 1908. Length 210 mm.

19613. Mansalay, Mindoro. June 4,
1908. Length 137 mm.

8611, 21609. Matnog Bay, Luzon.
May 31, 1909. Length 88 to 335 mm.

20288. Mindanao River, below
mouth, Cotabato, Mindanao. May 20,
1908. Length 70 mm.

20446 to 20448. Noto, Luzon.
June 19, 1909. Length 148 to 195 mm.

pores covering the entire length of²⁰⁷
the lower jaw, similar pores on
snout and under anterior part of
eye."

Mr. de Schanensee's note of the
life colors are "Golden green,
more golden on under sides.
Eight dark transverse narrowly
triangular blue bands on side,
points below reaching to or below
lateral line. Dorsal deep orange,
with 8 black stripes on
membranes. Caudal, anal and
paired fins golden orange."

(Found near a cave sacred
to Buddha:)

9/11 at school. bold copy

Belonidae

Strongylura strongylura (Van Hasselt)

Two, 118 to 149 mm., Bangkok;
35 examples, 32 to 244 mm., Chiang
Mai. When fresh silvery above,

7976, 7977. Pagapas Bay, Luzon.²⁷⁴⁸
February 20, 1909. Length 338 to 350 mm.

7392. Port Calton, Busuanga
Island. December 16, 1908. Length
253 mm.

20498. Port Galera, Mindoro.
June 9, 1908. Length 141 mm.

7273. Port Matalvi, Luzon.
November 23, 1908. Length 414 mm.

20960, 20961. Port Matalvi. no date.
Length 195 to 230 mm.

18689 to 18691, 21644. Port Jamelo,
Luzon. July 13, 1908. Length 60 to 210
mm. Seven examples.

21888. Port Jamelo, Luzon. July 12,
1908. Length 195 mm.

7188 to 7190. Port San Vicente,
Luzon. November 18, 1908. Length 295
to 430 mm.

8852. San Miguel Bay. January 15,
1909. Length 475 mm.

A. N. S. P., Nos. 58913 to 58925,
paratypes, same data. Length 73 to
99 mm. Also one, 43 mm., same
locality January 30, 1933 and one, 42
mm., December 30, 1932 from Ching
Mai.

Apparently closely related to
Barilius pulchellus H. M. Smith,
though certain ^{doubtful} points in both the
description and figure cause me
to hesitate to identify my materials
with that species. The dark bands
transversely along the sides are
not at all shaped like those of
my series, none are they as extensive.
The rostral barbels are said to be
long as the eye and a minute pair
of maxillary barbels are also said
to be present. The ventral fins are
shown graduated from the first.
The pearl organs are incompletely

20887. Santiago River, Pagapas^{~749}
Bay, Luzon. February 20, 1909. Length
150 mm.

8301. Sorsogon market, Luzon.
March 12, 1909. Length 357 mm.

7678. Ulugan Bay, Palawan.
December 28, 1908. Length 360 mm.

One example. Varadero Bay.
July 25, 1908. Length 98 mm.

19983. Sandakan Bay, Borneo.
March 2, 1908. Length 145 mm.

Above, where wider than pale interspaces and high on back, below narrowed to points, so anterior may reach little below lateral line and posterior usually to lateral line. Dark bars on caudal peduncle usually more or less as irregular blotches, not narrowed below. Anteriorly on lateral line sometimes several ^{port} dark bars may occur, alternating between tips of large transverse ones. Head dark above. Iris silvery white, also side of head. Dorsal with rays pale to whitish, each membrane with black longitudinal streaks, Caudal grayish. Other fins all more or less whitish.

A. N. S. P., no. 58912. Foot of Chiang Dao, North Siam. January 23, 1933. Length 105 mm. Type.

2750
A.N. S.P., one example. Bombay.
Bombay Natural History Society.
Length 275 mm.

2751

Sphyraena langsar Bleeker

Sphyraena langsar Bleeker, Nat.

Tijds. ned. Indië, vol. 7, p. (360) 367,
1854 (type locality, Batjan; Batavia);
vol. 8, p. 392, 1855 (Amboina); vol. 10,
p. 359, 1856 (Ternate); Verh. Batavia.
Genoot. (Sphyraen.), vol. 26, p. 19, 1857
(Batavia); Nat. Tijds. ned. Indië,
vol. 20, p. 141, 1859-60 (Badjoa, Boni).
— Günther, Cat. Fish. Brit. Mus., vol. 2,
p. 340, 1860 (copied). — Macleay, Proc.
Lin. Soc. New South Wales, vol. 2, p.
359, 1878 (Port Darwin). — Klunzinger,
Sitzb. Ber. k. k. Acad. Wiss. Wien, math.-
naturw. Kl., vol. 80, pt. 1, p. 374, 1879
(1880) (Port Darwin). — Macleay,

~~22134. J. Tamaru Islands~~
22161. Tuta Bay, Tolo Island.

September 19, 1909. Length 90 mm.

[1957.] Olive, becoming yellowish on middle of side, narrow dusky blue stripes bounded by darker, stripe an interval less than diameter of pupil; yellowish body stripes continued somewhat paler below and darker stripes grayish. Lower jaw and maxillary with slight yellowish wash. Dorsal body color, with pale bars on spinous portion and black centered ocellus at bases of second and third rays. Caudal with slight yellowish tinge. Anal similar, paler. Paired fins dusky.

2752

Proc. Linn. Soc. New South Wales, vol.
5, pt. 2, p. 35, 1881 (copied). — Saville-
Kent, Great Barrier Reef, p. — , 1893
(North Queensland). — Evermann and
Seale, Bull. Bur. Fisher., vol. 26, p. 60,
1906 (1907) (Bulan, Bacon, San Fabian).
— Weber, Siboga Exped., vol. 57, Fische,
p. 152 (Macassar, Saleyer, Pepelak
Bay on Rotti). — Jordan and Starks,
Atlas

Weber and Beaufort, Fish. Indo
Austral. Archip., vol. 4, p. 228, 1922
(Nias; Pulu Weh; Batavia; Flores;
Macassar, Rotti). ✓ — Fowler,

Nat. Sci. Philadelphia, vol. 79, p. 265,
1927 (P.L.D.).

— McCulloch, Mem. Austral. Mus., vol. 5, pt. 1,
p. 121, June 29, 1929 (reference)
ye) [✓] K newy, rev. Aust. Ocean.

2752

Proc. Linn. Soc. New South Wales, vol.
5, pt. 2, p. 35, 1881 (copied). — Saville-
Kent, Great Barrier Reef, p. —, 1893
(North Queensland). — Evermann and
Seale, Bull. Bur. Fisher., vol. 26, p. 60,
1906 (1907) (Bulan, Bacon, Van Fabian).
— Weber, Siboga Exped., vol. 57, Fische,
p. 152 (Macassar, Saleyer, Pepelak
Bay on Rotti). — Jordan and ~~Starks~~ Starks,
Ann. Carnegie Mus., vol. 11, nos. 3-4,
p. 439, November 5, 1917 (Ceylon). —
Fowler, Copeia, no. 58, p. 62, June 18,
1918 (Philippines). — Proc. Acad.
Nat. Sci. Philadelphia, vol. 79, p. 265,
1927 (Philippines); Mem. Bishop Mus.,
vol. 10, p. 130, 1928 (New Guinea;
Fiji). — Chevey, Rev. Inst. Océan.

gray white. Fins pale brownish.

India, China, Formosa, Korea, Japan, Hawaii. There has also reported it from the Philippines. *Taenius chinensis* Steadman

in evidence. The present species is a
race to have. Vectors 5-7 to 5-9 in lateral
view. (Dorsal fin with 16-18 rays.)

Bay on R
Ann. Car
p. 439, ha
Fowler, Co
1918 (Ph
Nat. Sci.
1927 (Ph
vol. 10, p.
Fiji).

anal with hyaline membranes,
rays body color. Pectoral rays
dusky, membranes hyaline, black
at bases. Ventral darker than anal.

5691 and 5692. Santa Cruz, Marinduque.
April 24, 1908. Length 247 to 288 mm.

5718. Surigao, Mindanao. May 8, 1908.
Length 275 mm.

14215. Tapanak Island. January 7,
1909. Length 145 mm.

4903 and 4966. Talajit Island, Buang Bay. March 15, 1909. ^{Length 185 to 202 mm.}

7363. Tava Island. December 15, 1908.
Length 385 mm.

6843. Tatan, Simulac Island.
February 19, 1908. Length 220 mm.

12382. Tatan. February 21, 1908.
Length 175 mm. [S. 272.]

Indo Chine, 19^e note, p. 20, August 25,
1932 (Gulf of Siam).

Sphyræna megalolepis Peters,
Monatsb. Akad. Wiss. Berlin, p. 842,
1876 (1877) (type locality, Carteret
Harbor, New Ireland). — Jordan and
Seale, Bull. Bur. Fisher., vol. 25, p.
219, 1905 (1906) (reference).

18631. Saborn Island, Ragay Gulf. ¹⁴⁰⁷
March 10, 1909. Length 108 mm.

4993. Sanguisiapo Island. February
24, 1908. Length 337 mm.

11894 and 18159. San Miguel Harbor,
Ticao Island. April 21, 1908. Length
100 to 191 mm. [S. 594.] Back seal
brown, becoming slightly lighter
below. narrow longitudinal stripes
of dark slate in middle of side;
central portion brown, interspaces
narrow and defined from narrow
pale line by darker, or nearly sepia
border. Dorsal slaty, reddish brown
at bases of membranes and their
centers and membranes of soft
fin dull yellowish. Caudal and

2754

Depth $6\frac{1}{2}$ to $6\frac{3}{4}$; head $2\frac{5}{6}$ to $3\frac{1}{4}$,
width $3\frac{1}{10}$ to $3\frac{2}{5}$. Snout $2\frac{1}{4}$ to
 $2\frac{2}{7}$ in head from snout tip;
eye 5 to $5\frac{1}{5}$, $2\frac{1}{8}$ to $2\frac{1}{5}$ in snout,
exceeds bony interorbital;
maxillary reaches $\frac{7}{8}$ to eye,
length $2\frac{2}{5}$ in head from snout
tip; upper jaw teeth uniserial,
small, directed backward, 4
canines anterior; lower teeth
larger, vertical, with single
canine at symphysis; 3 or 4 large
vertical fangs anteriorly on each
palatine; bony interorbital $7\frac{2}{5}$
to $7\frac{1}{2}$, low, nearly level; preopercle
edge broadly obtuse. Gill rakers
2, upper at angle of gill arch, $1\frac{1}{3}$
in gill filaments, which $2\frac{1}{3}$ in
eye.

Scales 70 or 71 ~~in~~ in

8268, 8269, 8591. Catbalogan, Samar Island. April 14, 1908. Length 116 to 125 mm. Male with buccal eggs.

23192 and 23192. Catbalogan, Samar Island. April 15, 1908. Length 113 to 120 mm.

20 examples. Catbalogan. April 16, 1908. Length 100 to 125 mm.

5810. Habatas Point, Samar Island. July 24, 1909. Length 127 mm.

18636 [1290]. Saboon Island, Ragay Gulf, Luzon. March 10, 1909. Length 132 mm.

14750 to 14751. San Juanico Strait, between Leyte and Samar. April 13, 1908. Length 107 to 117 mm. Male with buccal eggs.

lateral line to caudal base and 5 or 6 more on latter; 8 above, 10 below, 20 predorsal forward to occiput; ventral axillary scale $1\frac{7}{8}$ in fin. Scales with 43 to 50 basal radiating striae; apically thin scale edge worn to ragged fringe; circuli basal, fine.

D. V - I, I, 8, I, second spine $2\frac{3}{5}$ to $2\frac{9}{10}$ in total head length, first branched ray $3\frac{1}{5}$ to $3\frac{1}{4}$; A. II, 8, first branched ray $2\frac{2}{3}$ to $3\frac{1}{3}$; least depth of caudal peduncle $4\frac{1}{5}$ to $4\frac{3}{4}$; caudal length $1\frac{4}{5}$ to $1\frac{7}{8}$; pectoral $2\frac{1}{8}$ to $2\frac{2}{5}$, reach little beyond first dorsal; ventral $2\frac{2}{3}$ to $2\frac{3}{4}$.

Above brown, darker or dusky on head above. Sides and lower surfaces whitish, with silvery

23706 to 23709. Beach at village near Chase Head, Endeavor Strait, Malampaya Sound, Palawan Island. December 22, 1909. Length 104 to 114 mm. [969, 970]. Olive above. Top of head with yellow shades, washed with red below. First dorsal body color, second to fourth membranes orange terminally and second tipped with black. Second dorsal body color, merging into reddish terminally, produced ray distinctly red. Caudal with reddish shades, most distinct on edges of lobes. Fins otherwise dusky red. Male with eggs.

16598. Beacon Reef, Catbalogan, Samar Island. April 16, 1908. Length 114 mm.

16671. Busin Harbor, Burias Islands. April 23, 1908. Length 142 mm.

reflections. First dorsal pale
olive. Second dorsal pale or
dull brown, like caudal, other
fins still lighter. Iris white,
gray above.

Known previously only from
Seale's description of the type
and 2 paratypes, which he calls
cotypes. It was described, and
figured, though without any comment
as to its relationship. It is,
however, somewhat variable, especially
the sexes. The males show the
second dorsal ray greatly elongated,
when depressed extending beyond
caudal base.

Known only from the Philippines.

A. N. S. P., two examples.
Durban, Natal. H. W. Bell Marley.
Length 153 to 270 mm.

$2\frac{1}{10}$; pectoral $1\frac{1}{3}$ to $1\frac{2}{5}$; ventral
 $1\frac{1}{4}$ to $1\frac{1}{3}$.

Brown generally, scarcely paler below. Each scale with basal deeper brown bar so arranged to form reticulate pattern. Abdomen, opercles and sides of abdominal cavity with brassy to coppery tints. At caudal base medially small round dusky brown blotch about half size of pupil, usually conspicuous. Fins variably pale brown, sometimes clouded deeper brown or even dusky brown. Some males with lower surface of head and ventrals quite swarthy. Iris pale yellowish, to neutral gray, brown or slaty.

2758

Sphyraena chrysotaenia Klunzinger

Sphyraena chrysotaenia Klunzinger,
Fische Roth. Meer., p. 129, pl. 11, fig.
3, 1884 (type locality, Red Sea). —
Boulenger, Proc. Zool. Soc. London,
p. 664, 1887 (Muscat).

Sphyraena aureoflammea Seale,
Philippine Journ. Sci., vol. 4, no. 6,
p. 502, November 1909 (type locality,
Zamboanga, Mindanao). — Fowler
and Bean, Proc. U. S. Nat. Mus.,
vol. 62, p. 17, 1922 (Cebu).

China, Queensland. ~~Though none~~
 Some of our examples reach ^{a greater} ~~the~~ size than
 given by Bleeker (530 mm.). They
 show the changes in coloration due
 to age, the black spots few in
 the young ^{and} becoming quite numerous
 with age.

13180. Cataingan Bay, east of Masbate.
 April 17, 1908. Length 105 mm.

17180. Butuanan Island, eastern
 Luzon. June 13, 1909. Length 180 mm.

5356. Cebu market. April 5, 1908.
 Length 241 mm.

21750. Cebu market. March 28, 1909.
 Length 79 mm.

4588. Endeavor Strait, Palawan Island.
 December 23, 1908. Length 357 mm.

4833. Jolo market. February 11, 1908.
 Length 275 mm.

2759

Depth $6\frac{3}{5}$; head $2\frac{7}{8}$. Snout $2\frac{1}{4}$
in head from upper jaw tip; eye $5\frac{1}{8}$;
maxillary reaches $\frac{3}{4}$ to eye, expansion
 $1\frac{1}{4}$ in eye, length $2\frac{3}{5}$ in head
from snout tip; teeth in jaws
erect, 2 front canines above and 1
at symphysis; interorbital $6\frac{1}{2}$,
low; preopercle edge with produced
adnate flap. Gill rakers 2 below
lanceolate, $1\frac{1}{2}$ in gill filaments,
which 3 in eye.

Scales 81 in lateral line to
caudal base and 8 more on latter;
10 above, 10 below, 26 predorsal
forward to occiput. Scales
with 28 to 34 basal parallel
striae; circuli fine.

D. V — I, 9, I, first dorsal
origin opposite pectoral tip,
second spine $2\frac{7}{8}$ in total head
length; first branched ray $4\frac{1}{5}$;

A. II, 9, I, first ray 4; caudal
2, forked; least depth of
caudal peduncle $6\frac{1}{5}$; pectoral
 $3\frac{1}{2}$; ventral 4.

Brownish above, paler below.

Red Sea, Philippines. Klunzinger
describes the back gray, lateral
line in coppery or brassy streak,
parallel and below. Golden
yellow streak from snout to
caudal base. Dorsals and caudal
greenish, without dark edges,
lower fins pink. Length 300 mm.

U. S. N. M., No.

. Colw.

2761

Dr. Frank Baker. Length 163 mm.

Sphyraena obtusata Cuvier

2762

Sphyraena obtusata Cuvier, Hist. Nat.
Poiss., vol. 6, p. 350, 1836 (type locality,
Bourbon; ~~Malabar~~
Pondicherry; ~~Bombay~~ Malabar; Port
Jackson). — Schlegel, Fauna Japonica,
Poiss., ^{p. 33,} pts. 2-4, pl. 13, fig. 2, 1843 (Japan).
— Bleeker, Verh. Batavia. Genoot.
(Perc.), vol. 22, p. 56, 1849 (Batavia;
Surabaya); vol. 22 (Madura), p. 4,
1849 (Kammal). — Cantor, Journ. Asiatic
Soc. Bengal, vol. 18, pt. 2, p. 1006, 1849
(1850) (Sea of Pinang; Singapore). — Jerdon,
Madras Journ. Lit. Sci., p. 140, 1851. —
Bleeker, Nat. Tijds. Ned. Indië, vol.
3, p. 52, 1852 (Singapore), p. 235
(Amboina), p. 237 (Wahai); vol. 4, p.

of the soft anal is also dusky,
likewise upper front edge of
the soft dorsal, in small specimens.
The species is well marked and
easily distinguished among the
numerous members of the family
by its unusual coloration, together
with its very slender pointed head,
due in large measure to the greatly
pointed and protruded mandible.

Two examples, 22161 and 14938, are
apparently referable to Myxerodon
urophthalmus as admitted by Boulenger.

596, 1853 (Halmaheira); vol. 5, p. 154,
 1853 (Macassar), p. 320 (Amboina);
 Verh. Batavia. Genoot. (hal. Ichth.
 Japan), vol. 25, p. 10, 1853 (reference);
 (hal. Ichth. Bengal), vol. 25, p. 34,
 1853 (reference); Nat. Tijds. Ned. Indië,
 vol. 6, p. 50, 1854 (Sindangole,
 Halmaheira), p. 375 (Anjer), p. 457
 (Amboina); vol. 7, pp. 226, 227, 1854
 (Macassar), p. 311 (Anjer), p. (360) 364,
~~1855~~ (Batjan; Batavia, Surabaya, Anjer;
 Kammal, Telokbetong, Priaman, Benculen;
 Singapore; Macassar, Bulucombo,
 Ternate; Sindangole; Wahai); vol. 8,
 p. 437, 1855 (Bonthaian, Celebes);
 vol. 9, p. 1086, 1855 (Sahu, Halmaheira),
 p. 282 (Macassar), p. 432 (Groot Olij),

1401

at all ages. Fins pale brownish,
uniform or soft verticals spotted
obscurely with darker. In young
spinous dorsal with basal median
and terminal row of darker or
dusky blotches, less defined with
age. Pectoral pale olivaceous.
Ventral deep brown, especially
terminally and outer or front edge
pale to whitish.

Zanzibar, Madagascar, Seychelles,
East Indies, Philippines, Melanesia,
Micronesia. Though none of our
examples so large as Boulenger
gives (520 mm.) they all show the
whitish horizontal lines distinct
at all ages. The lower front edge

p. 493 (Amasing and Madawang Rivers,
 Batjan); vol. 10, p. 359, 1856 (Ternate);
 vol. 11, p. 94, 1856 (Banda); vol. 12, p.
 192, 1856 (Ternate), p. 213 (Nias), p.
 293 (Boleling, Bali); ~~vol. 13, p. 383, 1857~~
~~(Batjan)~~. Act. Soc. Sci. Ind. Néerl.,
 vol. 1, no. 3, p. 3, 1856 (Manado), pp. 7, 9
 (Macassar); vol. 1, no. 5, p. 4, 1856
 (Amboina); vol. 2, no. 7, p. 3, 1857
 (Amboina); Nat. Tijds. Ned. Indië,
 vol. 13, p. 383, 1857 (Batjan); Verh.
 Batavia. Genoot. (Sphyraen.), vol. 26,
 p. 17, 1857 (Java; Batjan; Madura;
 Celebes; Halmaheira; Singapore;
 Sumatra; Ternate; Ceram); (hal. Ich.
 Japan), vol. 26, p. 4, 1857 (~~referen~~^{Nagasaki});
 Act. Soc. Sci. Ind. Néerl., vol. 3, no. 3,

series basally and circuli fine.

D. XI, 14, I or 15, I, third spine
 3 to $3\frac{3}{4}$ in total head length,
 eleventh ray $2\frac{2}{3}$ to $3\frac{1}{3}$; A. III, 9, I,
 third spine $3\frac{1}{4}$ to $4\frac{1}{4}$, fourth ray
 $2\frac{1}{3}$ to $2\frac{7}{8}$; caudal $1\frac{3}{4}$ to $1\frac{7}{8}$, rounded
 behind; least depth of caudal
 peduncle 4 to $4\frac{1}{4}$; pectoral $2\frac{1}{8}$ to $2\frac{1}{5}$;
 ventral 2 to $2\frac{3}{5}$.

In alcohol brown or little lighter
 on under surface of head and
 abdomen. Usually spotted or
 blotched obscurely with darker.
 Four pale grayish to whitish
 longitudinal or horizontal lines,
 narrow, variously broken or
 incomplete and at least distinct

p. 5, 1857-58 (Japan); vol. 3, no. 4, p. 2,
1857-58 (Macassar); vol. 3, no. 9, p. 2,
1857-58 (Padang, Sumatra), p. 5
(Siboga); hat. Tijds. ned. Indië,
vol. 15, p. 242, 1858 (Singapore);
vol. 17, p. 142, 1858-59 (Boeleling);
vol. 18, p. 360, 1859 (Blingu, Banka);
vol. 20, p. 198, 1859-60 (Badjoa). —
Günther, Cat. Fish. Brit. Mus., vol. 2,
p. 339, 1860 (Australia, Port Jackson,
Amboyna, Malay Peninsula, India).
— Kner, Reise Novara, Fische, p. 140,
1865 (Hong Kong). — Day, Fishes of
Malabar, p. 65, 1865. — Playfair,
Fishes of Zanzibar, p. 78, 1865. ^(Aden; Zanzibar)
Bleeker, Verslag. Akad. Wet.
Amsterdam, ser. 2, vol. 2, p. 300, 1868

1399

lower edge entire; 3 small
equidistant opercular spines, upper
slightly advanced. Gill rakers 7+17,
lanceolate, equal gill filaments or
 $\frac{1}{2}$ of eye; upper and lower 6 or 7
rudimentary.

Scales 82 to 110 + 14 to 16 in lateral
line, pores 57 to 61 + 5 to 7, 15 to 20
scales above lateral line, 30 to 37
below, 80 to 90 predorsal, 28 to 33
rows across cheek; maxillary with
upper $\frac{3}{4}$ of expansion finely scaled;
fine basal scales on all fins;
body scales largely without auxiliary
small basal scales. Scales with
4 to 15 basal radiating striae, 26 to
32 apical denticles with 3 to 6 transverse

(Waigiu). — Klunzinger, Verh. Zool.
Bot. Ges. Wien, vol. 20, p. 820, 1870
(types of Sphyræna flavicauda and
S. obtusata). — Bleeker, Nederl.
Tijds. Dierk., vol. 4, p. 133, 1873 (1874)
(Hong Kong). — Day, Fishes of India,
pt. 2, p. 343, pl. 71, fig. 5, 1876. —
Martens, Preuss. Exped. Ost Asien,
p. 390, 1876 (Yokohama; Manila).
— Günther, Journ. Mus. Godeffroy,
vol. 6, pt. 11, p. 212, pl. 119, fig. B,
1876 (Australia; Fiji). — Macleay,
Proc. Linn. Soc. New South Wales,
vol. 5, pt. 2, p. 34, 1881 (Port Jackson).
— Steindachner and Döderlein, Denks.
Akad. Wiss. Wien, math.-naturw. Kl.,
vol. 47, pt. 1, p. 35, 1883 (Tokyo). —

1398

Depth $3\frac{1}{8}$ to $3\frac{1}{2}$; head $2\frac{1}{4}$ to $2\frac{1}{3}$,
width $3\frac{1}{2}$ to $3\frac{4}{5}$. Snout $3\frac{3}{4}$ to 4
in head from snout tip; eye 5 to 7,
 $1\frac{1}{4}$ to $1\frac{7}{8}$ in snout, much greater
than interorbital; maxillary reaches
to hind eye edge in young and
little beyond with age, expansion
 1 to $1\frac{1}{2}$ in eye, length 2 to $2\frac{1}{8}$ in
head; teeth fine, villiform, in
bands in jaws, in mandible 4 rows
anteriorly narrowing to 2 rows
posteriorly; pair of small upper
front canines, sometimes double,
but no lower ones; band of fine
teeth on vomer, none on palatines;
interorbital $7\frac{1}{5}$ to $8\frac{1}{2}$, little convex;
hind preopercle edge entire, also

Klunzinger, Fische Roth. Meer., p.
128, 1884. — Boulenger, Proc. Zool.
Soc. London, p. 664, 1887 (Muscat).

— Day, Fauna British India,
Fishes, vol. 2, p. 337, fig. 112, 1889.

— Sauvage, Hist. Nat. Madagascar,
Poiss., p. 522, 1891 (reference). —

Elera, Cat. Fauna Filipinas, vol. 1,
p. 505, 1895 (Luzon; Manila). —

Seale, Occas. Pap. Bishop Mus.,
vol. 1, no. 3, p. 66, 1900 (1901) (Guam).

— Smith and Seale, Proc. Biol. Soc.
Washington, vol. 19, p. 76, 1906

(Mindanao). — Jordan and Seale,

— Duncker, Mitteil. Naturh. Mus. Hamburg,
vol. 21, p. 165, 1903 (1904) (locality?). —

Jordan and Seale, Bull. Bur. Fisher., vol.
25, p. 218, 1905 (1906) (Apia). — Seale,
Occas. Pap. Bishop Mus., vol. 6, no. 1, p. 18,
1906 (Fate).

Anhyperodon leucogrammus Boulenger,
Cat. Fishes Brit. Mus., vol. 1, 1895, p.

270 (Seychelles, North Celebes, Amboina,
Ponapé, Maciteum, Zanzibar).

Epinephelus leucogrammus Bleeker,
Atlas Ichth. Ind. Néerl., vol. 7, 1873-
76, pl. (1) 279, fig. 4.

Serranus urophthalmus Bleeker, Nat.
Tijds. Ned. Indië, vol. 8, 1855, p. 310.

Batu Archipelago. — Günther, Cat.
Fishes Brit. Mus., vol. 1, 1859, p. 155

(copied).

Epinephelus urophthalmus Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76, pl.
(12) 290, fig. 3.

Anhyperodon urophthalmus Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76, p. 29
(Batu).

Anhyperodon urophthalmus Boulenger,
Cat. Fishes Brit. Mus., vol. 1, 1895, p. 271 (copied).

Bull. Bur. Fisher., vol. 26, p. 11, 1906
(1907) (Cavite). — Evermann and Seale,
Bull. Bur. Fisher., vol. 26, p. 60, 1906
(1907) (Bulan). — Seale and Bean,
Proc. U. S. Nat. Mus., vol. 33, p. 241,
1907 (Zamboanga). — Waite, Rec.
Canterbury Mus., vol. 1, no. 1, p. 16,
April 25, 1907 (reference). — Franz,
Abhandl. Kon. Bayer. Akad. Wet.,
vol. 4, Suppl. Band 1, p. 26, 1910
(Yokohama; Aburatsubo). — Snyder,
Proc. U. S. Nat. Mus., vol. 42, p. 495,
1912 (Okinawa). — Kendall and Goldsborough,
Mem. Mus. Comp. Zool., vol. 26, p. 266,
1911 (Moer, Truk Group, Carolines;
Suva, Fiji). — Ogilby, Mem. Queensland
Mus., vol. 2, p. 92, December 10, 1913
(note). — Weber, Siboga Exped., vol.
57, Fische, p. 151, 1913 (Macassar). —

Amperodon leucogrammicus (Valenciennes)

Serranus leucogrammicus (Reinwardt)

Valenciennes, Hist. nat. Poiss., vol. 2, 1828,
p. 347. Moluccas and Seychelles.

Amperodon leucogrammicus Günther,
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 96
(Amboina). — Playfair, Fishes of
Zanzibar, 1866, p. 1 (Zanzibar and
Seychelles); Proc. Zool. Soc. London,
1867, p. 846 (Seychelles). — Bleeker,
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Ternate, Amboina). — Sauvage, Hist.
nat. Madagascar, Poiss., 1891, p. 83, pl.
7, fig. 4. — Weber, Siboga Exped., vol.
45, 1913, p. 207 (Gisser Island and
Banda). — Beaufort, Bijdr. Dierk.
Amsterdam, 1913, p. 112 (Amboina).

2769

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9, p. 61, 1914 (Hong Kong). — McCulloch,
and Whitley, Mem. Queensland Mus., vol. 8, pt. 2,
p. 141, July 7, 1925 (reference). —
Fowler, Proc. Acad. Nat. Sci.

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(Delagoa Bay); vol. 79, p. 265, 1927
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Moew, Society Islands). — Sowerby,
Natural. Manchuria, vol. 4, p. 162,
1930 (Pei-tai-Ho). — Schmidt,

— McCulloch, Mem. Austral. Mus., vol. 5,
pt. 1, p. 121, June 29, 1929 (reference).

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p. 130, 1928 (Fate, Guam, Suva,
Moew, Society Islands). — Sowerby,
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1930 (Pei-tai-Ho). — Schmidt,

9 Trans. Pac. Comm. Acad. Sci. U. S.

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Riu Kiu). — Chu, Biol. Bull. St.

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Diploprion bifasciatum Cuvier.

Diploprion bifasciatum (Kuhl and Van Hasselt)

natural.

1930 (Pe

Trans. C

S. R., vol

Rice Rice

John's ed

very small, ctenoid. Head entirely scaly. Lateral line complete, tube straight or directed upward.

Vertebral 24, of which 14 caudal.

Dorsal with 11 spines and 14 or 15 rays.

Anal short, spines 3, rays 8 or 9.

Caudal rounded. Pectoral symmetrical, rounded, rays 16 or 17. Ventral below pectoral, fins close together, spine strong.

Indian Ocean and Western Pacific Ocean.

1, art. 3, p. 76, 1932 (Colombo, Ceylon;
Brisbane). ²⁷⁷⁰

Sphyraena obtusata Bleeker, Nat.
Tijds. Ned. Indië, vol. 3, p. 741,
1852 (Boeloelombra).

Sphyraena obtusa Guichenot, Notes
Ile Réunion, vol. 2, p. 24, 1862.

Genus Anyperodon Günther

Anyperodon Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 95. Type Serranus leucogrammicus Valenciennes, monotypic.

Anhyperodon Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 269. Type Serranus leucogrammicus Valenciennes.

Body compressed, elongate. Eye small. Mouth large, protractile. Maxillary exposed, with supplemental bone. Teeth in jaws in broad villiform bands, inner movable, depressible, hinged at bases; small upper front canines present; teeth on vomer but none on palatines or tongue. Opercle with 3 spines. Preopercle edge finely serrated. Gill membranes separate. Gill rakers long. Pseudobranchiae present. Branchiostegals 7. Scales

? Sphyraena chinensis Lacépède,
 Hist. Nat. Poiss., vol. 5, pp. 324, 329,
 pl. 10, fig. 2, 1803 (type locality,
 China). — Richardson, Ichth.
 China Japan, p. 266, 1846 (China;
 Canton). — Günther, Cat. Fish.
 Brit. Mus., vol. 2, p. 334, 1860 (name).
 — Bleeker, Nederl. Tijds. Dierk.,
 vol. 4, p. 133, 1873 (1874) (reference).

Sphyraena flavicauda Rüppell,
 Neue Wirbelth. Fische, p. 100, pl. 25,
 fig. 3, 1835 (type locality, Red Sea).
 — Fowler, Proc. Acad. Nat. Sci.
 Philadelphia, vol. 77, p. 210, 1925
 (Delagoa Bay).

forward. Gill rakers $11 + 26$, finely lanceolate, little longer than gill filaments or $1\frac{1}{8}$ in eye.

Scales 41 to 45 in lateral line to caudal base and 1 more tubular on latter, 6 scales above, 17 or 18 below, 28 to 30 predorsal forward not quite to snout tip; 9 or 10 rows across cheek to preopercle angle, with last 3 rows on preopercle flange; body scales with few or no auxiliary small basal scales; 5 or 6 transverse rows of scales on maxillary expansion. Scales with 9 to 14 basal radiating striae, 66 to 105 apical denticles and circuli very fine.

D. X, 17, I, third spine $1\frac{1}{2}$ to $2\frac{2}{3}$ in total head length, fourteenth ray $1\frac{4}{5}$ to $2\frac{2}{5}$; A. III, 7, I, third spine 2 to $2\frac{1}{8}$, third ray $1\frac{1}{10}$ in

2772

~~*Sphyraena grandisquamis* Steindachner~~

Sphyraena grandisquamis Steindachner,
Sitzb. Ber. Akad. Wiss. Wien, math.
naturw. Kl., vol. 53, pt. 1, p. 446, 1866
(type locality, Port Jackson). —
Jordan and Seale, Bull. Bur.
Fisher., vol. 5, p. 219, 1905 (1906)
(reference).

Gill rakers very short, nearly rudimentary. Branchiostegals 7. Vertebral 24, of which 14 caudal. Scales very small, cycloid. Head entirely scaly. Lateral line complete, extends on caudal; tubes straight or directed upwards. Dorsal with 10 spines, rays 18, spinous part nearly long as soft. Anal spines 3, rays 20, fin short. Caudal rounded. Pectoral rays 17 or 18, symmetrical, rounded. Ventral with strong spine, below pectoral, fins close together.

Indian and western tropical Pacific Oceans.

Vphyraena pinguis Günther, Ann.
Mag. Nat. Hist., ser. 4, vol. 13, p.
157, 1874 (type locality, Chefoo).

— Snyder, Proc. U. S. Nat. Mus., vol.
42, p. 409, 1912 (Hakodate). —

Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 111,
1913 (reference). — Jordan and
Hubbs, Mem. Carnegie Mus., vol. 10,
No. 2, p. 206, 1925 (Yokama, Miyazu, Fukuoka,
Kyoto, Kobe, Misawa Bay).

— Sowerby, Natural. Manchuria,
vol. 4, p. 163, 1930 (Chin wang Tao).

— Schmidt, Bull. Acad. Sci. U. R.
S. S., p. 1138, 1930 (Tsungta); Trans.
Pac. Comm. Acad. Sci. U. S. S. R.,
vol. 2, p. 36, 1931 (Nagasaki). —

Anonymous, Illustrat. Jap. Aquatic
Plants Animals, vol. 1, pl. 21, fig. 9,
1931.

Ambassis kopsii Bleeker.

Ambassis kopsii Bleeker, Nat. Tijds. Ned. Indië, vol. 15, 1858, p. 253. Singapore. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 224 (copied). — Peters, Monatsh. Akad. Wiss. Berlin, 1868, p. 255 (Pulo Brani, Singapore). — Fowler, Proc. Acad. Nat. Sci. Philad.^{delphi}, 1927, p. 275 (Philippines).

Ambassis kopsii Bleeker, Atlas Ichth. Ind. Néerl., vol. 8, 1876-77, p. 134, pl. (66) 344, fig. 1 (Singapore and Banca). — Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 18 (Cavite). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 255 (Iloilo). — Seale, Philippine Journ. Sci., vol. 5, no. 4, 1910, p. 274 (Sandakan, Borneo).
Ambassis ambassis (non Lacépède) Fowler, Copeia, no. 58, June 18, 1918, p. 63 (Philippine material).

2774

Sphyraena strenua de Vis, Proc.
Linn. Soc. New South Wales, vol. 8,
p. 287, 1883 (type locality, Moreton
Bay). — Macleay, Proc. Linn. Soc.
New South Wales, vol. 9, p. 39, 1884
(reference).

Sphyraena schlegelii Steindachner,
Ann. Hofmus. Wien, vol. 11, p. 209,
1896 (type locality, Japan).

Sphyraena schlegelii Jordan and
Snyder, Annot. Zool. Japon., vol.
3, p. 61, 1901 (reference).

Sphyraena forsteri (not Cuvier)
Jordan and Seale, Bull. Bur.
Fisher., vol. 25, p. 219, 1905 (1906)
(Apia; part).

Subgenus Ambassis Cuvier

Scales large, 24 to 30 in lateral line to caudal base. Cheeks with 1 or 2 rows of scales. Second and third anal spines subequally long.

Sphyræna lineata

Stead, Edible Fish. New South
Wales, p. 47, pl. 15, 1908 (type locality,
New South Wales coast).

Depth $2\frac{1}{3}$ to $2\frac{2}{5}$; head $2\frac{1}{3}$ to $2\frac{3}{5}$, width $2\frac{1}{4}$ to $2\frac{2}{5}$. Snout $4\frac{1}{8}$ to $4\frac{3}{5}$ in head from snout tip; eye $2\frac{3}{4}$ to $2\frac{4}{5}$, much greater than snout or interorbital; maxillary reaches about $\frac{1}{3}$ in eye, expansion $2\frac{1}{4}$ to $2\frac{2}{3}$ in eye, length $2\frac{1}{8}$ to $2\frac{1}{3}$ in head from snout tip; teeth fine, villiform, in narrow bands in jaws, on vomer and palatines; interorbital 4 to $4\frac{1}{5}$, very slightly convex; 1 to 3 postero-supraorbital serrae; lower preorbital edge with 7 or 8 serrae and ridge with smaller and less conspicuous serrae; preopercle ridge and edge below serrate, hind edge also serrate but not vertical ridge and spine at angle of ridge broad, triangular, well developed. Gill rakers 7 + 17 or 18, finely lanceolate, $\frac{1}{2}$ of eye; gill

Depth $5\frac{3}{5}$ to $7\frac{1}{8}$; head $2\frac{3}{4}$ to 3,
 width $2\frac{1}{4}$ to $3\frac{2}{3}$. Snout $2\frac{1}{6}$ to
 $2\frac{1}{3}$ in head from snout tip;
 eye $4\frac{3}{4}$ to $5\frac{1}{4}$, 2 to $2\frac{1}{3}$ in snout,
 subequal to little greater than
 interorbital; maxillary reaches
 $\frac{4}{5}$ to $\frac{7}{8}$ in eye, expansion $2\frac{1}{4}$ to
 3 in eye, length $2\frac{2}{5}$ to $2\frac{5}{6}$ in
 head from snout tip; teeth
 vertical, erect, 2 pairs of upper
 front canines, single lower
 symphyseal canine and several
 smaller laterals which larger
 than others in mandible; each
 palatine with row of fine
 teeth preceded by row of 3 to 5
 large canines; interorbital 5 to

15801, 15010, 15011, 23078, 23079, 23391.

Inakesi Island, Palawan. April 5, 1909.

14 examples. Length 59 to 86 mm.

5 examples. Mantacao Island, west coast of Bohol. April 8, 1908. Length 41 to 76 mm.

11328. Mantaguin Bay, eastern Palawan. April 2, 1909. Length 75 mm.

3 specimens. Maribojoc Bay, Maribojoc, Bohol. March 26, 1909. Length 67 to 89 mm. Two males with buccal ova.

21971 to 21973. Murciélagos Bay, Mindanao. August 9, 1909. Length 74 to 79 mm.

23086. Near Palag Bay, Luzon. June 16, 1909. Length 66 mm.

$7\frac{1}{2}$, slightly convex and largely depressed medianly; preopercle broadly obtuse. Gill rakers $0+2$, half of gill filaments or 4 in eye.

Scales 75 to 87 in lateral line to caudal base and 5 to 10 more on latter; $8\frac{7}{8}$ to 10 above, $8\frac{10}{8}$ below, 26 to 30 predorsal forward to eyes, 6 or 7 rows on cheek.

Scales with 32 to $46\frac{7}{8}$ basal radiating striae; complete circle with about 30 apical.

D. $\underline{\underline{V}}$ — $\underline{\underline{I}}$, $\underline{\underline{I}}$, $\underline{\underline{8}}$, $\underline{\underline{I}}$, or $\underline{\underline{I}}$, $\underline{\underline{9}}$, $\underline{\underline{I}}$, first spine $2\frac{1}{3}$ to $3\frac{3}{5}$ total head length, first ^{branched} ray $2\frac{1}{2}$ to $3\frac{7}{8}$;
A. $\underline{\underline{I}}$ or $\underline{\underline{II}}$, $\underline{\underline{8}}$, $\underline{\underline{I}}$ or $\underline{\underline{9}}$, $\underline{\underline{I}}$, last

17341 and 17345, 23947 and 23948.

Sasabel, Basilan Island. September 11, 1909. Length 73 to 82 mm. Male with buccal ova.

23705. Jolo. March 6-7, 1908. Length 87 mm.

23918 and 23919. Limbones Cove, Luzon Island. February 8, 1909. Length 65 to 74 mm. [1130.] Pearl color. 4 stripes black, caudal spot in lemon yellow area about size of eye.

1 example. Mactan Island. August 31, 1909. Length 38 mm.

5738 and 5739. Mahinog, Camiguin Island. August 3, 1909. Length 88 or 89 mm.

spine $5\frac{1}{2}$ to 7, first branched ray $2\frac{4}{5}$ to 4; caudal $1\frac{1}{3}$ to $1\frac{2}{3}$, forked; pectoral $2\frac{1}{4}$ to $3\frac{1}{4}$, reaches to or little beyond spinous dorsal origin; ventral $2\frac{1}{4}$ to $3\frac{1}{4}$, inserted well before spinous dorsal; least depth of caudal peduncle $4\frac{1}{8}$.

Head above and back brown, below silvery white. Pale diffuse longitudinal gray streak along middle of side close below lateral line. Iris silvery white, with gray. Dorsals and caudal dusky, with pale yellowish tinge basally, other fins pale yellowish white.

29 examples. Catbulogan, Samar Island.
April 16, 1908. Length 73 to 116 mm.

[1822?] Cebu market. August 28, 1909.
Length 66 mm.

23077, 23496, 23497. Endeavor Strait,
north-west coast of Palawan. December
22, 1908. Length 67 to 72 mm.

15742, 15744, 15745. Endeavor Strait.
December 23, 1908. Length 47 to 85 mm.

23102 and 23103. Galera Bay, Mindoro.
June 9, 1908. Length 70 to 80 mm.

23518 to 23520. Guinayan Island.
June 4, 1909. Length 75 to 90 mm. Male
with buccal eggs.

9902. Inamucan Bay, Mindanao.
August 8, 1909. Length 75 mm.

Five examples. Itulayan Bay, Luzon.²⁷⁷⁹
June 17, 1909. Length 46 to 112 mm.

20140, 21422. Bacoor, Luzon.
June 15, 1908. Length 118 to 150 mm.

Eight examples. Caracaran, Batan
Island. June 8, 1909. Length 83 to
132 mm.

^{19858.}
19858, 19859. Catangian Bay,
Masbate. April 18, 1908. Length 118 to
120 mm.

20382. Catbalogan, Samar. April 10,
1908. Length 125 mm.

9085 to 9087, 21187, 22751.
Catbalogan. April 15, 1908. Length 113
to 232 mm.

22609. Catbalogan. April 16, 1908.
Length 118 mm.

7780 to 7783. Catbalogan. April
17, 1908. Length 222 to 230 mm.

7521 to 7529, 7531, 11729. Cotabato,
Mindanao. May 20, 1908. Length 130 to 159 mm.

before each pectoral fin base.
 Lateral line complete, greatly
 decurved, runs low along side of
 caudal peduncle to middle of
 caudal fin base, small tubes
 simple and short. Scales with 5
 to 8 apical radiating striae, ^{with scalloped scale edge} 5 or
 6 shorter basally; circuli fine,
 concentric.

D. III, 7, I, fourth ray $1\frac{1}{10}$ to $1\frac{7}{8}$
 in total head length; A. III, 11, I
 or III, 17, I, first branched ray
 $1\frac{2}{5}$ to $1\frac{3}{5}$; least depth of caudal
 peduncle $2\frac{2}{5}$ to 3; pectoral $1\frac{1}{5}$ to
 $1\frac{2}{5}$, rays I, 11; ventral rays I, 7,
 fin $1\frac{1}{3}$ to $1\frac{7}{8}$ in total head;
 caudal $2\frac{4}{8}$ to $3\frac{1}{5}$ in rest of fish,
 well forked, lobes pointed.

Back brown or gray brown,
 edge of each scale darker. On
 side 8 to 10 dark transverse

2780
negros.

Six examples. Guigulugan Island,
June 4, 1908. Length 84 to 120 mm.

One example. Guigulugan Island.
April 2, 1908. Length 41 mm.

One example. Guigulugan Island.
April 3, 1908. Length 35 mm.

20603. Lingayen Gulf, Luzon.
May 11, 1909. Length 90 mm.

9206, 907. Mahinog, Camiguin
Island. August 3, 1909. Length
240 to 277 mm. Six examples.

20265 to 20267. Malcochin Harbor,
Linapacan Island. December 19, 1908.
Length 114 to 135 mm.

22548. Manila market. January
13, 1908. Length 161 mm.

9066. Manila market. June 24,
1908. Length 250 mm.

11775, 11778, 11780, 11783, 19611, 19612,
20858, 20859. Mansalay, Mindoro. June 4,
1908. Length 77 to 154 mm. Nine examples.

on infraorbital band of rather large
pearl organs, more or less biserial
in places. Two tubercles near
end of maxillary on its outer
face. Surface of each mandibular
ramus studded with rather large
prominent pearl organs, 2 or 3
rows on outer face and single
inner row, which well distinct
from others. Short bar of pearl
organs on lower limb of preopercle,
few others less conspicuous
scattered over branchiostegals.
On dorsal some rays medially
and terminally with small pearl
organs in rows on rays. Few small
scattered tubercles along side
of back becoming more numerous
behind dorsal fin and above
base of anal, where each scale
with gash along its upper exposure.
Rather beeled adipose-like pad

9022, 20596. Port Zambelo, Luzon. ²⁷⁸¹
July 13, 1908. Length 44 to 228 mm.
30 examples.

7268 to 7272. Port Matalvi,
Luzon. November 23, 1908. Length
253 to 360 mm.

19672. Santa Cruz, Marinduque.
April 24, 1908. Length 67 to 89 mm.

21230. Surigao, Mindanao.
May 8, 1908. Length 47 to 120 mm.
31 examples.

^{22163.}
20337, 20338, 21408, 21409, Tuta
Bay, Jolo. September 19, 1909. Length
79 to 132 mm.

27 examples. Varadero Bay,
Mindoro. July 23, 1908. Length 49 to
100 mm.

Two examples. Tifu Bay, Bouru
Island, Dutch East Indies. December 10,
1909. Length 23 to 28 mm.

216

Mastacembelidae

Rhynchobdella aculeata (Bloch).

Four, 150 to 182 mm.; Chantaboon.
Apparently same as Günther's
var. siamensis as 4 or 5 black
pale-edged ocelli along soft
dorsal base, all with similar
ocellus at caudal base and one
specimen also with ocellus at
bases of last anal rays.

Mastacembelus armatus (Lacépède).

Forty-five, 66 to 257 mm., Chiang
Mai; Twelve, 88 to 198 mm., Bua
Yai. Chiang Mai examples were
Black, mottled with ochre yellow,
lighter on belly. Others blackish
brown, mottled with dull yellow.
Some of the Bua Yai specimens
approach the form favus Hora,
though with even more contrasted

21868 [1108]. Marwiler wharf. ²⁷⁸¹

January 30, 1909. Length 120 mm.

21244. Mindanao River, below
mouth, Cotabato, Mindanao. May
20, 1908. Length 99 mm.

21717. Hato River tidal.
June 18, 1909. Length 171 mm.

19953, 20643. Opol, Mindanao.
August 4, 1909. Length 172 to 223 mm.

One example. Pandanon Island.
March 22, 1909. Length 50 mm.

19313, 21807. Pandanon Island.
March 24, 1909. Length 42 to 250 mm.

118 examples.

One example. Philippines. Length
225 mm.

21230, 22701, 22702. Port Calton,
Busuanga Island. December 15, 1908.
Length 81 to 111 mm.

5 $\frac{1}{5}$; slightly greater than snout to 1 $\frac{1}{4}$
in snout with age, 1 $\frac{1}{5}$ to 1 $\frac{2}{5}$ in
interorbital; maxillary reaches $\frac{1}{4}$
to $\frac{2}{5}$ in eye, length 2 $\frac{1}{5}$ to 2 $\frac{1}{4}$ in
head; rostral barbel always more
or less developed, 1 $\frac{3}{4}$ to 2 in eye,
rarely a small inconspicuous hind
maxillary barbel may sometimes
occur; lower jaw distinctly
projects; lips narrow; interorbital
3 to 3 $\frac{1}{5}$ in head from snout tip.
Gill rakers 1 + 5, lanceolate, $\frac{1}{4}$
of gill filaments, which 1 $\frac{1}{4}$ in
eye. Pharyngeal teeth 2, 4, 5 - 5, 4, 2,
hooked, largest with entire and
rather broad-grinding surfaces.

Scales 36 or 37 in lateral
line to caudal base and 2 more
on latter; 8 above, 3 below to
ventral origin, 3 below to anal
origin, 21 to 23 predorsal. On
+ ... also

2782

A. n. S. P., one example. Bombay.
Prof. F. Hallberg. Length 272 mm.

A. n. S. P., four examples.
Philippines. Commercial museums
of Philadelphia. Length 162 to
185 mm.

A. n. S. P., two examples. Delagoa
Bay, Portuguese East Africa. H.
W. Bell Marley. 1922. Length 206 to
217 mm.

A. n. S. P., one example. Delagoa
Bay. H. W. Bell Marley. 1922. Length
197 mm. As Sphyrapoda flavicauda.

23093. Cammahala Bay, Ragay Gulf,
Luzon. March 11, 1909. Length 65 mm.

15091, 15092, 15094, 15096, 15098. Capulaan
Bay, Pagbilao, Chica Island. February
24, 1909. Length 41 to 75 mm.

12100. Capunuyugan Point, Generale
Island, east coast Mindanao. May 10, 1908.
Length 63 mm.

15509. Caracaran, Batan Island.
June 8, 1909. Length 95 mm.

13177 and 24054. Cataingan Bay, Masbate
Island. (6 examples. April 17, 1908. 1)
Length 68 to 98 mm.

23996 to 23998. Cataingan Bay.
April 18, 1908. Length 48 to 67 mm.

16097. Cataingan Bay. May 14, 1909.
Length 70 mm.

2783

Sphyraena brachygnathos Bleeker

Sphyraena brachygnathos Bleeker,
Verh. Batavia. Genoot. (Sphyraen.),
vol. 26, p. 22, 1857 (type locality,
Batavia; Batjan). Nat. Tijds. Ned.
Indië, vol. 7, p. (360) 368, 1854

(type locality, Batjan; Batavia)
— McCulloch, Mem. Austral. Mus., vol. 5, pt. 1,
p. 127, June 29, 1929 (reference)

4 Sphyraena brachygnathos ←
— Gilby, Proc. Roy. Soc. Queensland,
vol. 21, p. 23, 1908 (Moreton Bay).

— McCulloch and Whitley, Mem.
Queensland Mus., vol. 8, pt. 2, p.
141, July 7, 1925 (reference).

Sphyraena brachygnathus Günther, Cat.
Fish. Brit. Mus., vol. 2, p. 340, 1860
(copied). — Kner, Reise Novara, Fische,
p. 139, 1865 (Ceylon; Java).

7762. Manila market. June 17, 1908.
Length 174 mm.

6718. Manila market. December 4, 1908.
Length 315 mm.

22448. Manila market. April 17, 1909.
Length 650 mm.

A 762. Mabul Island, vicinity
Sibuko Bay, Borneo. September 29, 1909.
Length 385 mm.

A 990. Togian Bay, Togian Island,
Gulf of Tomini, Celebes. November 19,
1909. Length 478 mm.

— Weber and Beaufort, Fishes Indo
Austral. Archip., vol. 4, p. 229, 1922
(East Indies):

39

Tender surface of head pale or
drab. Fins blackish slate,
well contrasted with paler body,
more blackish terminally,
especially folded.

Six, 94 to 155 mm., Bangkok.
Rohita pectoralis Vauvage from
Cambodia seems to represent
my material. Its fins are of
similar shape, contrasted blackish
according to the figure. It is
described with D. 20, A. 8, and
most of its characters in
agreement. Its scales differ a
little in that they are 46 to 48.

Weber and Beaufort's figure
of Labeo (morulus) chrysophe~~theadion~~
shows the dorsal and anal both
with concave upper or outer edges,
also the last simple dorsal
ray extended, a condition not
seen in any of my specimens.

Depth 8; head 3. Snout $1\frac{1}{4}$ in head; eye $4\frac{1}{2}$, 2 in snout, $1\frac{2}{5}$ in interorbital, $1\frac{1}{2}$ in postorbital; maxillary not reaching eye, $2\frac{2}{3}$ in head; upper jaw with series of small teeth and 2 canines in front; lower jaw with series of larger distant vertical teeth, increasing in size posteriorly; palatines with series of numerous small teeth and 7 canines in front; rasp like teeth on tongue; hind preopercular edge rectangular, somewhat extended into flexible flap; opercle without spine.

Scales 85 in lateral line.

D. V - I, 8 or I, 9, origin of first dorsal far behind ventral origin, slightly behind pectoral tip; inter dorsal twice base of second dorsal; A. II, 8 or 9,

origin below fourth dorsal ray;
caudal forked; pectoral rays
II, 11, fin equals postorbital;
ventral rays I, 5, fin shorter
than pectoral.

Silvery, brownish above.
Length 328 mm.

(Weber and Beaufort.)
Ceylon, East Indies, Queensland.

Sphyraena forsteri Cuvier

Sphyraena forsteri Cuvier, Hist. nat. Poiss., vol. 3, p. 353, 1829 (type locality, Tahiti). — Valenciennes, Hist. nat. Poiss., vol. 7, p. 509, 1831 (New Guinea; Tahiti). — Bleeker, Nat. Tijds. Ned. Indië, vol. 7, p. 424, 1854 (Batavia); vol. 9, p. 284, 1855 (Manado); vol. 12, p. 293, 1856 (Boeleng, Bali); vol. 13, p. 371, 1857 (Sangi); Act. Soc. Sci. Ind. Néerl., vol. 1, no. 3, p. 7, 1856 (Macassar); vol. 1, no. 5, p. 4, 1856 (Amboina); Nat. Tijds. Ned. Indië, vol. 13, p. 371, 1857 (Sangi); vol. 17, p. 130, 1858-59 (Attapoepe, Timor). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 337, 1860 (Calcutta). — Bleeker, Ned. Tijds.

interorbital 7 to $7\frac{7}{8}$ in head from snout tip, nearly level; hind preopercle edge denticulate, with 2 points at angle little enlarged, become small with age; opercular spines 3, median nearer lower and most posterior. Gill rakers 6 + 14, low knobs half of gill filaments, which $1\frac{1}{2}$ in eye.

Scales 74 to 100 in lateral line to caudal base and 12 to 20 more on latter; tubes 44 to 70 in lateral line to caudal base and 5 to 7 more on latter; 21 to 24 scales above, 34 to 37 below, 80 to 90 predorsal; 30 to 33 rows across cheek to preopercle angle; muzzle, including maxillary and preorbital, naked; fins all more or less covered with fine scales. Scales with

Deerke., vol. 1, p. 270, 1863 (Sitapur, Junior). — Günther, Journ. Mus. Godeffroy, vol. 5, pt. 11, p. 211, pl. 119, fig. B, 1876 (Tahiti; Chiapam). — Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1 p. 280

— Steindachner, Sitzb. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 78, pt. 1, p. 382, 1878 (1879).

Schmeltz, Cat. Mus. Godeffroy, no. 8, p. 6, 1881 (Ponape). — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 2, p. 33, 1881 (South coast of New Guinea). — Schmeltz, Cat. Mus. Godeffroy, no. 8, p. 6, 1881 (Ponape). — Macleay, Proc. Linn. Soc. New South Wales, vol. 7, p. 361, 1882 (New Guinea); vol. 9, p. 269, 1883 (Hood Bay, New Guinea). — Pöhl, Cat. Mus. Godeffroy, no. 9, p. 34, 1884 (Ponape). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 219, 1905 (1906)

Deerke., vol. 1, p. 270, 1863 (Aitape, Junior). — Günther, Journ. Mus.

Godeffroy, vol. 5, pt. 11, p. 211, pl. 119, fig. B, 1876 (Tahiti; Chiapam). —

Alleyne and Macleay, Proc. Linn.

Soc. New South Wales, vol. 1, p. 280,

1876 (Hall Sound, New Guinea).

— Bleeker, Arch. Neerl. Sci. Nat., vol.

13, p. 38, 1878 (New Guinea).

Schmeltz, Cat. Mus. Godeffroy, no. 8, p. 6, 1881 (Ponape).

^ — Macleay, Proc. Linn. Soc. New South

Wales, vol. 5, pt. 2, p. 33, 1881 (South coast of New Guinea). — Schmeltz,

Cat. Mus. Godeffroy, no. 8, p. 6, 1881

(Ponape). — Macleay, Proc. Linn. Soc.

New South Wales, vol. 7, p. 361, 1882

(New Guinea); vol. 9, p. 269, 1883

(Hood Bay, New Guinea). — Pöhl,

Cat. Mus. Godeffroy, no. 9, p. 34, 1884

(Ponape). — Jordan and Seale, Bull.

Bur. Fisher., vol. 25, p. 219, 1905 (1906)

in the presence, when it is eye.
Noses 44 or 45 in lateral line to
caudal base and for 2 more on latter;

13, f. 38
Schmeltz, Cat. m.
— Maclean

Maclean
For. h.
1876 (H.
— Bleek

Exped., vol. 65, 1913, p. 206 (Gisser Island and Elat, High Key). —
Ogilby, Mem. Queensland Mus., vol. 2, 1913, p. 90 (Darnley Island and Cairns Reef); vol. 6, 1918, p. (Moreton Bay). —
Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, 1922, p. 29 (Cebu).

Depth $2 \frac{2}{3}$ to $2 \frac{4}{5}$; head $2 \frac{1}{3}$ to $2 \frac{3}{5}$, width $2 \frac{1}{10}$ to $2 \frac{4}{5}$. Snout 4 to $5 \frac{1}{3}$ in head from snout tip; eye $4 \frac{3}{4}$ to $7 \frac{1}{5}$, $1 \frac{1}{5}$ to $1 \frac{1}{3}$ in snout, greater than interorbital; maxillary reaches opposite middle of eye, expansion $1 \frac{1}{5}$ to $1 \frac{2}{3}$ in eye, length $2 \frac{2}{5}$ to $2 \frac{7}{8}$ in head from snout tip, teeth villiform, in rather wide bands, in young inner row in each jaw slightly longer, present on vomer and palatines but none on tongue;

(Apia). — Kendall and Goldsborough,
Mem. Mus. Comp. Zool., vol. 26, p.
262, 1911 (Suva, Fiji). —

[Fowler, Mem. Bishop Mus., vol. 10,
p. 129, 1928 (Tahiti, Samoa, Suva,
type of Sphyraena goodingi);
vol. 11, no. 5, p. 325, 1931 (reference).
Weber and Beaufort, Fish. Indo Austral. Archip.,
vol. 4, p. 223, 1922 (Cheribon, Java).

Sphyraena toxema Fowler, Journ.
Acad. Nat. Sci. Philadelphia, ser. 2,
vol. 12, p. 502, pl. 9, middle fig., 1904
(type locality, Padang, Sumatra)

Sphyraena toxusa Seale, Philippine
Journ. Sci., vol. 5, no. 4, p. 268, 1910
(Sandakan) (error).

Cromileptes altivelis Swainson, Lat.
 Hist. Animals, vol. 2, 1809, p. 201 (name
 only). — Bleeker, Atlas Ichth. Ind.
 Néerl., vol. 7, 1873-76, p. 30 (Singapore,
 Pinang, Bintang, Java, Ruzend Islands,
 Celebes, Batjan, Ambona). — Day, Fishes
 of India, pt. 1, 1875, p. 9, pl. 1, fig. 2
 (Nicobars). — Bleeker, Atlas Ichth. Ind.
 Néerl., vol. 8, 1876-77, pl. (44) 322, fig. 3.
 — Day, Fauna Brit. Mus., vol. 1, 1889, p. 441,
 fig. 139. — Boulenger, Cat. Fishes Brit. Mus.,
 vol. 1, 1895, p. 271 (Cebu, China, Pinang,
 Macassar, East Indies, Port Essington). —
Jordan and Seale, Proc. U. S. Nat. Mus.,
 vol. 28, 1905, p. 781 (Negros); Bull. Bur.
 Fisher., vol. 26, 1906 (1907), p. 19 (Manila).
 — Evermann and Seale, Bull. Bur. Fisher.,
 vol. 26, 1906 (1907), p. 78 (Bacon). —
~~Regan) Bull. Brit. Mus. Nat. Hist., vol. 17,~~
~~1901, p. 111 (Ambona) ~~Weber, Siboga~~~~

Sphyræna goodingi Seale, Oceas.
Pap. Bishop Mus., vol. 6, ^{no.} ~~pt.~~ 1, p.
18, fig. 4, 1906 (type locality,
Nukuhiva, Marquesas Islands).

Cromileptes altivelis (Valenciennes).

Serranus altivelis Valenciennes, Hist. Nat. Poiss., vol. 2, 1828, p. 324, pl. 35. Java. — Richardson, Ichth. Chin. Jap., 1846, p. 230 (copied). — Cantor, Cat. Malayan Fish, 1850, p. 10 (Pinang Sea). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 152 (East Indies, China, Port Essington). — Károli, Termesz. Füzetek. Budapest, vol. 5, 1882, p. 150 (Singapore). — Meyer, Ann. Soc. Españ. Hist. Nat. Madrid, vol. 14, 1885, p. 8 (Macassar, South Celebes; Cebu). — Elera, Cat. Fauna Filip., vol. 1, 1895, p. 463 (Luzon, Manila Bay, Cavite, Santa Cruz, Nasugbu, Batangas). — (Regan) Bedot, Rev. Suisse Zool., vol. 17, 1909, p. 169 (Amboina).

(— Gorgoza, Ann. Soc. Españ. Hist. Nat. Madrid, vol. 17, 1888, p. 282 (Manila Bay; Nasugbu, Batangas)).

Depth $7\frac{1}{4}$ to $7\frac{3}{4}$; head 3 to $3\frac{1}{6}$,
width $3\frac{1}{4}$ to $3\frac{1}{2}$ Snout $2\frac{1}{8}$ to $2\frac{1}{10}$ in head
from snout tip; eye $4\frac{2}{3}$ to 5, $2\frac{1}{5}$ to $2\frac{2}{5}$
in snout, subequal with interorbital;
maxillary reaches nearly to eye,
expansion 2 in eye, length $2\frac{1}{6}$ in
head from snout tip; 4 large
upper canines, single one forward
in jaw below, lower lateral teeth little inclined backward;
interorbital $4\frac{1}{3}$ to
 $4\frac{1}{2}$, flattened, slightly concave
preopercle edge rounded convexly.
below; no gill rakers, or at 11 low, feeble, denticles

Scales 110 to 118 in lateral line
to caudal base and 4 to 8 more on
latter; 13 to 14 above, 13 or 14 below,
 $45\frac{1}{2}$ to 55 predorsal, forward to hind eye edge, 19 postocular to
preopercle ridge. Scales with
38 to 82 marginal basal ^{close set} radiating
striae; circuli fine, basal, imperfect apically.

D. V— I, 9 or I, I, 8, I, second
spine $3\frac{1}{8}$ to $3\frac{7}{8}$ in total head, first
branched ray $3\frac{3}{5}$ to 4; A. II, 8 or
III, I, 6, I, first branched ray $3\frac{2}{3}$ to $4\frac{1}{6}$;

caudal $1\frac{3}{5}$ to $1\frac{3}{4}$, deeply emarginate; least depth of caudal peduncle $4\frac{2}{5}$ to 5; pectoral $2\frac{3}{4}$ to 3, rays $\underline{\text{II}}$, 12; ventral rays I, 5, fin $3\frac{1}{4}$ to $3\frac{5}{6}$ in total head length.

Pale brown above, with many narrow inconspicuous dark brown longitudinal bands, parallel, formed by dark tint on each scale. Lower surfaces of body silvery white. Spinous dorsal dark gray, gray black terminally. Soft dorsal dusky above. Caudal grayish. Pectoral pale, base dusky, other fins whitish.

~~Red Sea, Madagascar, India,~~
East Indies, Formosa, Micronesia,
Polynesia.

A. N. S. P., No. 27472. Padang, Sumatra.
A. C. Harrison and H. M. Miller. 1901.

Length 230 mm. Type of Sphyraena
toxema.

Sphyraena toxema

Cheilodipterus nigrotæniatus Smith and Radcliffe

Cheilodipterus nigrotæniatus Smith and
Radcliffe, Proc. U. S. Nat. Mus., vol. 41,
1912, p. 442, pl. 37, fig. 3. North east
Sacol Island, Philippines.

6557. Maricaban Anchorage.

July 21, 1908. Length 350 mm.

Sphyraena altipinnis Ogilby ²⁷⁹⁵

Sphyraena altipinnis Ogilby, Proc.
Roy. Soc. Queensland, vol. 23, p. 8,
November 7, 1910 (type locality, Aru
Islands). — Weber and Beaufort,
Fishes Indo Austral. Archip., vol.
4, p. 222, 1922 (copied). — McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1,
p. 122, June 29, 1929 (reference).

Depth 7; head $3\frac{2}{5}$, Snout $2\frac{1}{8}$
in head from snout tip; eye $9, 4\frac{1}{8}$
in snout; maxillary reaches $\frac{2}{5}$
in eye, expansion $1\frac{2}{3}$ in eye,
length 2 in head from snout tip;
anterior lower teeth slightly
inclined posteriorly; interorbital
low; preopercle edge convex.

Scales 80 to 85 in lateral line;
10 above, 10 below.
~~22 transversely.~~

D. V - I, 9, first spine $3\frac{1}{3}$ in
total head length, first branched
ray $2\frac{3}{4}$; A. II, 8, first branched
ray $2\frac{2}{3}$; caudal $1\frac{1}{2}$, with 3
emarginations behind; least depth
of caudal peduncle $3\frac{4}{5}$; pectoral
3; ventral $3\frac{1}{3}$.

Dark sea green. Belly
whitish. Iris yellowish brown.
First dorsal dark gray with sly
blue rays. Second dorsal, anal
and caudal blackish, with tips

2796

Depth $7\frac{1}{8}$; head $3\frac{1}{5}$. Snout $2\frac{1}{8}$
in head; eye $5\frac{1}{8}$, $2\frac{2}{5}$ in snout;
maxillary reaches eye, expansion
 $2\frac{1}{5}$ in eye; mandible without
fleshy appendage; premaxillary
teeth 54 on each ramus; hind
canines much larger; 4 large
palatine teeth, second strongest;
mandible with 1 lateral teeth,
canine sinistral; interorbital
 $6\frac{4}{5}$ in head, feebly convex. No
long gill raker.

Scales 128 in lateral line;
13 above, 24 below. Head naked,
except scaly cheek and opercle.

D. V - I, 9, first dorsal begins
well before pectoral tip, spines
flexible, second $1\frac{1}{3}$ in snout,
soft dorsal higher than first
and ray extended; anal begins

2797

below middle of second dorsal,
similar, ends well behind
second dorsal; middle caudal
rays 3 in upper and longer
lobe; pectoral $1\frac{1}{4}$ in snout,
reaches well beyond ventral
origin, rays 15; ventral
inserted below first dorsal
origin, midway between
mandible tip and middle of
anal, length $1\frac{4}{5}$ in snout.

Above purple, each scale
with light center. Sides
silvery, crossed by 14 vertical
purple bars, first behind
pectoral tip, last above anal
end. Lower surfaces pearly
white. Dorsals blackish.
Caudal gray brown, darkest
above. Anal, ventral and

2798
pectoral gray, front rays of
former and outer rays of
2 latter dusky. Length 405
mm. (Ogilby.)

Am Islands, North Australia.

2799

Sphyraena jello Cuvier

Sphyraena jello Cuvier, Hist. Nat.
Poiss., vol. 6, p. 349, 1829 ~~Atypus~~
~~locality, etc.~~ (on Yellow Russell,
Fishes of Coromandel, vol. 2, p. 59,
pl. 174, 1803, type locality, Vizagapatam).
— Valenciennes, Voy. Ind. Orient.
Bé langer, Zool., vol. 1, 1834, p. 346
(Rüppell, Neue
Wirbelth. Fische, pp. 88⁹, 103¹⁰, 383³ (Red
Sea). — Bleeker, Verh. Batavia.
Genoot. (Perc.), vol. 22, p. 56, 1849
(Batavia, Bantam, Surabaya,
Samarang, Pasuruan); vol. 22
(Madura), p. 4 (Kammal). —
Cantor, Journ. Asiatic Soc. Bengal,
vol. 18, pt. 2, p. 1006, 1849 (1850)
(Pinang; Singapore). — Jerdon, Madras
Journ. Lit. Sci., p. 140, 1851. —

which $\frac{7}{8}$ of body; 9 to 12 rudimentary above and below.

Scales 86 to 98 in lateral line to caudal base and 6 to 8 more on latter; tubes 50 to 60 in lateral line to caudal base and 10 more on latter; 21 or 22 scales above lateral line, 28 to 31 below, 50 predorsal, 30 rows on cheeks; body scales without small, basal, auxiliary scales; head with small scales, more or less smooth; basal parts of fins minutely scaled; upper half of maxillary finely scaled. Scales with 5 to 7 basal radiating striae; circuli fine.

D. XI, 14, I or 15, I, third spine $4\frac{1}{2}$ to 5 in total head length, sixth ray $2\frac{2}{5}$ to $2\frac{5}{6}$; A. III, 8, I, third spine $4\frac{1}{5}$ to 5, fifth ray $2\frac{1}{2}$ to $2\frac{5}{6}$; caudal $1\frac{3}{4}$ to $1\frac{2}{3}$, rounded; least depth of

2800

Bleeker, Nat. Tijds. Ned. Indië, vol.
2, p. 210, 1851 (Bolloekomba), p.
471 (Rio); vol. 3, p. 52, 1852
(Singapore), p. 160 (Timor
kupang), p. 444 (Banba), p. 717
(Pankalpinang); Verh. Batavia.
Genoot. (hal. Sch. Japan), vol. 25,
p. 10, 1853 (reference); vol. 25 (hal.
Sch. Bengal), ~~no~~ p. 34, 1853
(reference); Nat. Tijds. Ned. Indië,
vol. 7, p. 227, 1854 (Macassar), p. 311
(Bantam; Tjiringin); vol. 7, p. (360)
369, 1854 (Batjan); vol. 8, p. 296,
1855 (Ternate), p. 345 (Tikoe,
Sumatra); vol. 9, p. 394, 1855
(North Pasuruan, Java); vol. 10,
p. 346, 1856 (Rio, Bintang); vol.
12, p. 213, 1856 (Nias); Verh.
Batavia. Genoot. (Sphyraen.), vol.
26, p. 12, 1857 (Batavia, Bantem,

Depth $3\frac{1}{5}$ to $3\frac{2}{5}$; head $2\frac{1}{5}$ to $2\frac{1}{3}$, width 2 to $2\frac{1}{8}$. Snout $4\frac{4}{5}$ to 5 in head from snout tip; eye $7\frac{4}{5}$ to $8\frac{1}{2}$, $1\frac{3}{5}$ to $1\frac{4}{5}$ in snout, $1\frac{2}{5}$ to $1\frac{7}{8}$ in interorbital; maxillary reaches well beyond eye, expansion 1 to $1\frac{1}{5}$ in eye, length 2 to $2\frac{1}{8}$ in head from snout tip; teeth equal, in broad bands in jaws and 3 rows in mandible laterally; in young mandibular teeth narrow biserially; pair of small canines in front of each jaw, often double; vomer and palatines with broad bands of small teeth; interorbital $4\frac{2}{3}$ to $5\frac{1}{2}$, little elevated; preopercle edge with very obsolete denticulations or nearly smooth; 3 opercular spines, upper and lower obsolete and lower most advanced. Gill rakers 10 + 15 or 16, short, robust, $\frac{2}{3}$ of gill filaments,

Samarang, Surabaya, Pasuruan, Java;
 Batjan; Bulucumba, Celebes; Kammal,
 Madura; Padang, Siboga, Telebetong,
 Sumatra; Pankalpinang, Banka;
 Rio, Bintang; Singapore; Timor
 Kupang); Act. Soc. Sci. Ind.
 Néerl., vol. 2, no. 7, p. 3, 1857
 (Amboina); vol. 3, no. 3, p. 5,
 1857-58 (Japan); Nat. Tijds. Ned.
 Indië, vol. 15, p. 242, 1858 (Singapore);
 vol. 16, p. 407, 1858 (Japan, Java);
 vol. 17, p. 142, 1858-59 (Boeleling,
 Bali); Nat. Tijds. vol. 21, p. 137, 1860
 (Muntok, Banka). — Günther, Cat.
 Fish. Brit. Mus., vol. 3, p. 337, 1860
 (Amboyna, China, Cape Seas, Calcutta,
 Malay Peninsula). — Kner, Reise
 Novara, Fische, p. 139, 1865 (Madras).
 — Day, Fishes of Malabar, p. 64, 1865.
 — Playfair, Fishes of Zanzibar, p. 78, 1866 (Zeychelles).
 — Bleeker, Verh. Akad. Wet.

Batrachus gigas Günther, Ann. Mag.
Nat. Hist., ser. 4, vol. 3, 1861, p. 131.

Seychelle Islands.

Oligorus terrae-reginae Ramsay, Proc.
Lin. Soc. New South Wales, vol. 5, 1881,
p. 93. northern rivers and inlets of Wide
Bay district and mouth of Barrum
River, about 20 miles from Maryborough,
Queensland.

Oligorus golbath De Vis, Proc. Lin. Soc.
New South Wales, vol. 7, 1883, p. 318.
Queensland.

Amsterdam, ser. 2, vol. 2, p. 291,
1868 (Rio, Bintang). — Klunzinger,
Verh. zool. bot. Ges. Wien, vol. 20, p.
823, 1870 (Red Sea). — Bleeker,
Ned. Tijds. Dierk., vol. 4, p. 133,
1873 (1874) (reference). — Day,
Fishes of India, pt. 2, p. 342, 1876.
— Martens, Preuss. Exped. Ost
Asien, p. 390, 1876 (Amboina). —
Steindachner, Denks. Akad. Wiss.
Wien, math.-naturw. Kl., vol. 46,
p. 39, 1881 (). —
Klunzinger, Fische Roth. Meer., p.
129, pl. 9, figs. 1-a, 1884. —
Boulenger, Proc. Zool. Soc. London,
p. 664, 1887 (Muscat). — Day,
Fauna British India, Fishes,
vol. 2, p. 335, 1889. — Elera, Cat.
Fauna Filipinas, vol. 1, p. 504, 1895
(Cebu). — Jordan and Snyder,

Nat. Sci. Phila., ser. 2, vol. 12, 1904, p.
524 (Padang, Sumatra). — Gilchrist
and Thompson, Ann. South Afr.
Mus., vol. 6, 1908-10, p. 219 (Durban
Museum). — Barnard, Ann. South
Afr. Mus., vol. 21, 1927, p. 486 (Natal
coast).

Promicrops lanceolata Jordan and
Evermann, Proc. U. S. Nat. Mus., vol.
25, 1902, p. 342 (Formosa).

Serranus geographicus Cuvier, Hist. Nat.
Poiss., vol. 2, 1828, p. 322. Java. —

Günther, Cat. Fishes Brit. Mus., vol. 1,
1859, p. 150 (copied).

Serranus horridus (non Cuvier) Cantor,
Cat. Malayan Fishes, 1850, p. 9 (Pinang
Sea, Singapore). — Günther, Cat.
Fishes Brit. Mus., vol. 1, 1859, p. 136
(no locality).

— Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, p. 333, 1902 (Formosa).

Seale, Proc. U. S. Nat. Mus., vol. 28, p. 774, 1905 (Negros); Bull. Bur. Fisher., vol. 26, p. 11, 1906 (1907) (Manila). — Evermann and Seale, Bull. Bur. Fisher., vol. 26, p. 59, 1906 (1907) (Bacon; Bulan). — Gilchrist and Thompson, Ann. South Afric. Mus., vol. 6, p. 195, 1908-11 (Natal). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, p. 245, 1907 (1908) (Iloilo).

— Johnstone, Fasc. Malay. Annandale and Robinson, Zool., vol. 2, p. 301, 1903 (Patani and Jhering coasts). — Duncker, Mitteil. Naturh. Mus. Hamburg, vol. 21, p. 164, 1903 (1904) (Singapore).

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mol
Annot. Zool. Japon., vol. 3, p. 61, ²⁸⁰³
1901 (reference) — Jordan and
Seale, Proc. U. S. Nat. Mus., vol. 28,
p. 774, 1905 (Negros); Bull. Bur.
Fisher., vol. 26, p. 11, 1906 (1907)
(Manila). — Evermann and Seale,
Bull. Bur. Fisher., vol. 26, p. 59, 1906
(1907) (Bacon; Bulan). —
Gilchrist and Thompson, Ann.
South Afric. Mus., vol. 6, p. 195,
1908-11 (Natal). — Jordan and
Richardson, Bull. Bur. Fisher.,
vol. 27, p. 245, 1907 (1908) (Iloilo).

(— Johnstone, Fasc. Malay. Annandale
and Robinson, Zool., vol. 2, p. 301,
1903 (Patani and Jhering coasts).
— Duncker, Mitteil. Naturh. Mus.
Hamburg, vol. 21, p. 164, 1903 (1904)
(Singapore).

four, also small patch of fine teeth
in front of each jaw; inferior

cannot.

1901 (re

~~ser. 2, vol. 5, 1881, p. 149 (Brisbane)~~
an Károli, Termesz. Füzetek, Budapest,
 vol. 5, 1882, p. 149 (Singapore). —
Macleay, Proc. Linn. Soc. New South Wales,
 ser. 2, vol. 1, 1886, p. 883 (Cairns district).
 — Day, Fauna British India, vol. 1,
 1889, p. 450. — Kent, Great Barrier Reef,
 1893, p. 369 (Queensland). — Fowler,
 Proc. Acad. Nat. Sci. Phila., 1907, p. 257
 (Padang material); op. cit., 1925, p. 223
 (Natal).

Epinephelus lanceolatus Bleeker, Atlas
 Ichth. Ind. Néerl., vol. 7, 1873-76, p. 49
 (Singapore, Banka, Java, Celebes,
 Goram); vol. 8, 1876-77, pl. (54) 332,
 fig. 3. — Boulenger, Cat. Fishes Brit.
 Mus., vol. 1, 1895, p. 251 (Port Natal,
 Mauritius, Zanzibar, Seychelles,
 Madras, Pinang, Singapore, West
 Africa?). — Fowler, Journ. Acad.

— Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 111,
1913 (reference). — Weber, Siboga
Exped., vol. 57, Fische, 1913, p.

— Gilchrist and Thompson, Ann. Durban
Mus., vol. 1, p. 4, p. 318, May 21, 1917 (reference).

— Weber and Beaufort, Fish. Indo Austral.
Archip., vol. 4, p. 220, 1922 (Mias; Cheribon;
Madura; Flores; Solor; Kota Bara, Borneo;
Makassar, Manado; Saleyer; Ceram). —

Barnard, Ann. South Afric. Mus., vol. 21,
pt. 1, p. 314, June 1925 (Katal).

Nat. Sci. Philadelphia, vol. 79, p.
265, 1927 (San Fernando; Orion);
Mem. Bishop Mus., vol. 10, p. 129,
1928 (compiled). — Tirant, Serv.
Océan. Pech. Indo Chine, Saigon,
p. 169, 1929 (Cochin China). — Chu,
Biol. Bull. St. John's Univ., No. 1,

— Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 111,
 1913 (reference). — Weber, Siboga
Exped., vol. 57, Fische, 1913, p.
 150, fig. 47 (Macassar, Manado,
 Kawa, Saleyer, Solor). — Seale,
Philippine Journ. Sci., vol. 9, p. 61,
 1914 (Hong Kong). — Pellegrin, Bull.
Soc. Zool. France, vol. 39, p. 224, 1914
 (ossi Be and St. Dauphin, Madagascar).
 — Jordan and Hubbs, Ann. Carnegie
Mus., vol. 11, nos. 3-4, p. 439, no. 5,
 1917 (Ceylon). — Fowler, Proc. Acad.
Nat. Sci. Philadelphia, vol. 79, p.
 265, 1927 (San Fernando, Orion);
Mem. Bishop Mus., vol. 10, p. 129,
 1928 (compiled). — Tirant, Serv.
Océan. Pech. Indo Chine, Saigon,
 p. 169, 1929 (Cochin China). — Chu,
Biol. Bull. St. John's Univ., no. 1,

some dusky brown on several inner
audal membranes medially, giving
treasured appearance to fin. Pectoral
with broad dusky or neutral dusky
obscure blotch, also on dark bar
across fin base, most dark at fin
origin. Ventrals slightly dusky
terminally. Also some dusky streaks

typed.,
150, fig
Kawa,
Philippine
1914 (Hon
Loc. Zool.
Hosi Be
Jordan
us, vol.
917 (Ceylon
Nat. Sci.

Promicrops

1413

~~Serranus lanceolatus (Bloch)~~

~~Holocentrus lanceolatus Bloch, Naturg.
Auslandfische, vol. 4, 1790, p. 92, pl. 242,
fig. 1. East Indies. — Walbaum, Arted.
Pisc., vol. 3, 1792, p. 645 (on Bloch). —~~

~~Forster, Fauna Indica, 1795, p. 16. —~~

~~Schneider, Syst. Ichth. Bloch, 1801, p.
315 (East Indies). — Lacépède, Hist. nat.
Poiss., vol. 4, 1802, pp. 340, 380 (East
Indies).~~

~~Serranus lanceolatus Cuvier, Hist. nat.
Poiss., vol. 2, 1829, p. 316 (Pondicherry). —~~

~~Cantor, Cat. Malayan Fishes, 1850, p. 8
(Pinang Sea). — Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 107 (copied).~~

~~— Day, Fishes of Malabar, 1865, p. 4, pl. 1,
fig. 1. — Playfair, Fishes of Zanzibar,~~

~~1866, p. 4 (Zanzibar). — Day, Fishes of
India, pt. 1, 1875, p. 18, pl. 4, fig. 1. —~~

~~Macleay, Proc. Linn. Soc. New South~~

~~Sphyraena genie Klunzinger~~

Sphyraena genie Klunzinger, Verh.
Zool. Bot. Ges. Wien, vol. 20, p. 823,
1870 (type locality, Red Sea). —
Fowler, Mem. Bishop Mus., vol. 10,
p. 129, 1928 (compiled).

Sphyraena kenie Klunzinger, Fische
Roth. Meer., p. 129, pl. 11, figs. 2-a,
1884 (type). — Peters, Monatsb.
Akad. Wiss. Berlin, p. 842, 1876 (1877)
(Bougainville Island). — Boulenger,
Proc. Zool. Soc. London, p. 664, 1887
(Muscat). — Jordan and Seale,
Bull. Bur. Fisher., vol. 25, p. 219,
1905 (1906) (reference).

5 examples. Busut River, Camrio Pass, east coast Luzon, June 15, 1909. Length 32 to 64 mm.

14 examples. Buena Vista, Guimaras Island, Iloilo Strait. January 14, 1909. Length 50 to 75 mm.

9113, 21183 to 21185. Catbalogan, Samar Island. April 15, 1908. Length 20 to 92 mm. 10 examples.

6 examples. Catbalogan, April 16, 1908. Length 17 to 68 mm.

19392 and 19393. Iloilo market, Iloilo, Panay. March 28, 1908. Length 73 to 77 mm.

20202 and 20203. Langley Point, Cavite. March 23, 1908. Length 76 to 85 mm.

5539. Malabon market. August 8, 1908. Length 40 mm.

22 examples. Malampaya River, Palawan Island. December 26, 1908. Length 40 to 93 mm.

p. 105, January 1931 (reference).

2806

Sphyraena kadanar Thiollière,
Fauna Woodlark, p. 149, 1857
(type locality, Woodlark Island).
Lucioperca? kadanar (Montrouzier)
Thiollière, Fauna Woodlark, p.
140, 1857 (name in synonymy).

Sphyraena putnamiae Jordan and
Seale, Proc. Davenport Acad. Sci.,
vol. 10, p. 4, 1905 (type locality,
Hong Kong). — Chen, Biol. Bull. St.
John's Univ., no. 1, p. 106, January 1931
(reference).

Sphyraena putnamiae Jordan and Seale,
Proc. Davenport Acad. Sci., vol. 10, pl.
13, 1905.

7662. Ulugan Bay, Palawan.

December 28, 1908. Length 401 mm.

7700. Ulugan Bay near Rito Island.

December 29, 1908. Length 345 mm.

19044. Caradero Bay, Mindoro.

July 23, 1908. Length 152 mm.

7147. West coast Palani Island.

November 18, 1908. Length 340 mm.

4735.

Length 185 mm.

A 1466. Cape Kuit, Libani Bay, Celebes.

December 29, 1909. Length 317 mm.

~~14938 and 14939. Talisse Island, Sulu~~

14938,

22729 and 22730. Talisse Island,

north of Celebes. November 9, 1909.

Length ⁶⁹~~155~~ to 175 mm.

12800. Tidore Island, south of Ternate.

November 25, 1909. Length 120 mm.

[S. 2134.] Tomahu Island, Bouru. December 12, 1909.
Length 77 mm.

2807

Depth $7\frac{1}{2}$ to $8\frac{1}{4}$; head 3 to $3\frac{1}{4}$,
width $3\frac{2}{5}$ to $4\frac{1}{4}$. Snout $2\frac{1}{8}$ to
 $2\frac{1}{4}$ in head from snout tip; eye
 $5\frac{1}{8}$ to $6\frac{1}{4}$, $2\frac{3}{4}$ to 3 in snout,
1 to $1\frac{1}{3}$ in interorbital; maxillary
reaches $\frac{7}{8}$ to ^{or to} eye, expansion $1\frac{2}{3}$ to 2
in eye, length $2\frac{1}{5}$ to $2\frac{2}{5}$ in head
from snout tip; teeth erect,
inclined backward, 4 canines in
front above and 1 symphyseal
below; interorbital $5\frac{1}{3}$ to $6\frac{3}{4}$,
level or with only slight median
depression; preopercle rounded
broadly convex. No gill rakers.

Scales 110 to 125 in lateral
line to caudal base and 8 to 12
more on latter; 13 to $15\frac{8}{8}$ above,

brown dots. Head and whole body with more or less soiled or obscure smutty appearance.

From lower eye edge to dark brown bar down over cheek.

Iris with coppery tinge. Spinous dorsal soiled deep grayish.

with several irregular black blotches. Other vertical fins all

pale, soft dorsal with subbasal gray longitudinal band. Paired fins pale, ventrals always with transverse more or less diffuse

band at basal fourth. Most

examples with obscure diffuse dark streak obliquely from humeral region to anal origin delimiting pale

2808

13^{to 16} below, 32 to 40⁵⁸ predorsal.
Scales with 14 to ~~16~~ basal
striae; circuli fine.

D. V - I, I, 8, I, first spine
 $2\frac{3}{4}$ to $3\frac{3}{4}$ in total head length,
first branched ray $2\frac{1}{3}$ to $2\frac{3}{4}$;
A. II, I, 7, I, second spine $5\frac{1}{2}$
to $6\frac{1}{2}$, first branched ray
 $1\frac{2}{3}$ to 3; caudal $1\frac{1}{2}$ to $1\frac{3}{4}$,
forked; least depth of caudal
peduncle $4\frac{1}{4}$ to 5; pectoral $2\frac{2}{3}$
to $2\frac{4}{5}$; ventral $3\frac{1}{5}$ to $3\frac{2}{3}$.

ventral brown above, below
pale to whitish. Back with 12
deep neutral gray transverse
bands or spots, often wider
than interspaces or about size

501
naked. Tubes in lateral line
large, well exposed and simple.
Scales with
8 or 9 basal radiating striae; apical
denticles 61 to 90 or transversely with
2 or 3 series of basal elements; ~~and~~
circuli fine.

D. VII - I, 9, I, fourth spine is $2\frac{1}{5}$
to $2\frac{1}{3}$ in total head length, first
branched ray $1\frac{3}{5}$ to 2; A. II, 8, I,
second spine $3\frac{1}{5}$ to $3\frac{3}{5}$, first branched
ray 2 to $2\frac{1}{2}$; caudal $1\frac{1}{5}$ to $1\frac{1}{4}$,
hind edge little emarginate; least
depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{3}{5}$;
pectoral $1\frac{3}{5}$ to $1\frac{3}{4}$; ventral $1\frac{4}{5}$ to $1\frac{5}{6}$.

Largely pale brown generally,
each scale on side with dark
median blotch made up of deeper

of eye and may extend down
to middle of side. Sometimes
back and sides with obscure
dark mottlings. Iris gray.
Dorsals and caudal dusky or
gray, other fins paler to
whitish.

Depth $2\frac{1}{4}$ to $2\frac{1}{2}$; head $2\frac{2}{5}$ to $2\frac{3}{4}$,
width $1\frac{4}{5}$ to $2\frac{1}{5}$. Snout $4\frac{1}{4}$ to $4\frac{2}{5}$
in head from snout tip; eye $2\frac{3}{4}$ to $3\frac{1}{8}$,
greater than snout or interorbital;
maxillary reaches opposite hind pupil
edge, expansion $1\frac{3}{4}$ to 2 in eye, length
^{bands of villiform teeth in jaws, on vomer and palatines;}
 $1\frac{9}{10}$ to 2 in head; interorbital 4 to $4\frac{1}{5}$,
nearly level; preopercle ridge entire,
edge minutely serrated. Gill rakers
6 + 13, lanceolate, greatly longer than
gill filaments or about half of
eye.
Scales 22 or 23 in lateral line to
caudal base and 3 to 5 more on
latter, 2 above, 5 below, 3 or 4
predorsal; 2 rows on cheek; muzzle,
including maxillary and preorbital,

2810

One example. Cebu market.
March 22, 1909. Length 64 mm.

One example. East side Tagbalaran
Strait, Bohol. April 9, 1908.
Length 45 mm.

Two examples. Port Janelo,
Luzon. July 13, 1908. Length 64 to 75 mm.

19984. Sandakan Bay, Borneo.
March 2, 1908. Length 135 mm.

1079

21434. Tara Island, Panpan Point,
between Jolo and Tawi Tawi. September
20, 1909. Length 94 mm.

8694. Tuta Bay, Jolo Island.
September 19, 1909. Length 147 mm.

21333. Brabirahan Island, off Borneo.
December 31, 1909. Length 67 mm.

15864. Danawan and Si Amil Islands,
vicinity Darvel Bay, Borneo. September
26, 1909. Length 111 mm.

16426, 16428, 20468. Danawan and Si
Amil Islands. September 27, 1909.
Length 115 to 135 mm.

14494. Tomahu Island, vicinity of Bouro.
December 12, 1909. Length 100 mm.

13453. Basa Island, Gulf of Boni,
Celebes. December 17, 1909. Length 128 mm.

~~13422, 13425 to 13428~~ ¹³⁴²⁷ 22226, 22227. Buba
Island, Gulf of Tomini, Celebes. November
20, 1909. Length 80 to 117 mm.

2811

A. N. S. P., one example. Delagoa
Bay, Portuguese East Africa.
1922. H. W. Bell Marley. Length
265 mm.

A. N. S. P., four examples.
Philippines. Commercial Museum
of Philadelphia. Length 106 to 257
mm.

A. N. S. P., one example. Bombay.
Prof. F. Hallberg. Purchased.
Length 258 mm.

A. N. S. P., one example. Natal.
H. W. Bell Marley. Length 473 mm.

Amia novae-guineae (Valenciennes).

Apocon novae-guineae Valenciennes,

Nouv. Ann. Mus. Hist. Nat. Paris, vol. 1,
1832, p. 53, pl. 4, fig. 1. New Guinea. —

Günther, Cat. Fishes Brit. Mus., vol. 1,
1859, p. 237 (India and Norfolk Island).

— Meyer, Ann. Soc. Españ. Hist. Nat.
Madrid, vol. 14, 1885, p. 12 (North Celebes).

Amia novae-guineae Bleeker, Atlas

Ichth. Ind. Néerl., vol. 7, 1875-76, p. 97,
pl. (41) 319, fig. 5 (Java and New Guinea).

— Jordan and Seale, Proc. U. S. Nat. Mus.,
vol. 28, 1905, p. 777 (Negros); Bull. Bur.
Fishes, vol. 26, 1906 (1907), p. 17 (Philippines).

— Evermann and Seale, Bull. Bur. Fishes,
vol. 26, 1906 (1907), p. 72 (Bulan). —

Jordan and Richardson, Bull. Bur.
Fishes, vol. 27, 1907 (1908), p. 254 (Sulilo).

Sphyræna novae-hollandiae Günther

Sphyræna novae-hollandiae Günther,

Cat. Fish. Brit. Mus., vol. 2; p. 335,

1860 (type locality, Hobson's Bay,

Port Phillip, Australia). — Canestrini,

Arch. Zool. Anat. Fisiol. Genova, vol.

2, pt. 1, p. 151, 1869 (Australia). —

Castelnau, Proc. Zool. Acclim. Soc.

Victoria, vol. 1, p. 96, 1872 (Melbourne);

London Internat. Exhib. Cat., p. 132, 1872

(Victoria); Rec. London Internat. Exhib.,

pt. 7, no. 5, p. 11, 1873 (Victoria); Proc.

Lin. Soc. New South Wales,

~~Zool. Acclimat. Soc. Victoria~~, vol. 3,

p. 352, 1878 (Port Jackson). —

Klunzinger, Sitzb. Ber. Akad. Wiss.

Wien, math.-naturw. Kl., vol. 80, pt. 1,

p. 373, 1879 (1880) (Murray River,

11068. Butananan Island, east
Luzon. June 13, 1909. Length 138 mm.

7858. Cagayan de Sulu, Sulu Sea.
January 8, 1909. Length 252 mm.

7599. Endeavor Strait, Palawan Island.
December 24, 1908. Length 326 mm.

8232. Galvaney Island, Ragay Gulf,
Luzon. March 9, 1909. Length 335 mm.

9483. Guntao Island, Palawan
Passage. December 20, 1908. Length 217
mm.

9024. Langa Point, southern Luzon.
June 24, 1909. Length 272 mm.

4716. Ligpo Point, Balayan Bay,
Luzon. January 18, 1908. Length 382 mm.

6040. Little Santa Cruz Island.
May 28, 1908. Length 365 mm.

King George Sound, Hobson Bay). —

Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 2, p. 32, 1881 (Port Phillip; Port Jackson). — Steindachner,

Sitzs. Ber. Akad. Wiss. Wien, math. naturwiss. Kl., vol. 88, pt. 1, p. 1069, 1883

(Gilby, Edible Fishes New South Wales, p. 30, 1893; Gulf of St. Vincent). — Gilby, Mem.

— Stead, Edible Fishes New South Wales, p. 46, 1908.

moreton Bay). — McCulloch and

— Roughley, Fishes of Australia, p. 45, 1916.

(New South Wales, Victoria, South Australia). —

Waite, Rec. South Austral. Mus., vol. 2, no. 1, p. 85, fig. 128, April 21, 1921 (reference).

2, no. 1, p. 5, January - March 1927 (Fiji).

— McCulloch, Fishes New South Wales, ed. 2, p. 41, pl. 14, fig. 149, 1927; Mem. Austr. Mus., vol. 5, pt. 5, p. 121, June 29, 1929 (reference).

— Fowler, Mem. Bishop Mus., vol.

11, no. 5, p. 325, 1931 (reference).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 75, p. 43, 1923 (Victoria).

King George Sound, Hobson Bay). —

Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 2, p. 32, 1881 (Port Phillip; Port Jackson). — Steindachner,

Sitzs. Ber. Akad. Wiss. Wien, math. naturwiss. Kl., vol. 88, pt. 1, p. 1069, 1883

Ogilby, Edible Fishes New South Wales, p. 30, 1893; (Gulf of St. Vincent). — Ogilby, Mem.

Queensland Mus., vol. 2, p. 92, 1913

(Moreton Bay). — McCulloch and

Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference);

Journ. Pan Pacific Res. Inst., vol.

2, no. 1, p. 5, January - March 1927 (Fiji).

— McCulloch, Fishes New South Wales, ed. 2, p. 41, pl. 14, fig. 149, 1927; Mem. Austr. Mus., vol. 5, pt. 1, p. 126, June 29, 1929 (reference).
— Fowler, Mem. Bishop Mus., vol.

11, no. 5, p. 325, 1931 (reference).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 75, p. 43, 1923 (Victoria).

W. J. ...
nateerw
(Gulf of
Queensl
(Moreto
Whitley,
pt. 2, p.
town. C
2, no. 1, b

of each row and also that about 1000
of the brown, with clear in middle
14 in head. II. XII, I. II. III, 8. Rank

8138. Alibijaban Island, Ragay
Gulf, Luzon. March 6, 1909. Length
362 mm.

11295 and 16008. Alimango Bay,
Burias Island. March 5, 1909. Length
138 to 140 mm.

15265 Atulayan Island, eastern Luzon.
June 18, 1909. Length 200 mm.

6512. Balikias Bay, southern Luzon.
July 17, 1908. Length 253 mm.

8083. Burias Island. March 5,
1909. Length 340 mm.

7255. Busbus Point, Basil Island.
September 30, 1909. Length 152 mm.

7195. Busin Harbor, Burias Island.

March 8, 1909. Length 223 mm.

7464. Bolalo Bay, Talawan Island.
December 21, 1908. Length 336 mm.

Sphyræna waitii Ogilby, Ann.
Queensland Mus., no. 9, pt. 1, pp. 4,
29, October 14, 1908 (type locality,
Port Jackson, New South Wales).
— McCulloch, Fishes of New
South Wales, ed. 2, p. 41, 1927
(reference); Mem. Austral. Mus.,
vol. 5, pt. 1, p. 121, June 29, 1929
(reference).

dusted with minute dusky dots.
Silvery white axial lateral band
from head to caudal base. Iris
white, with dark shade above.

Fins all largely pale brownish,
except black blotch terminally on
membranes of spinous dorsal
between second to fifth erect spines.

East Indies and Philippines.
A well marked species with large
scales and a contrasted terminal
blotch of black on apex of spinous
dorsal.

2815

Depth $9\frac{4}{5}$ to $10\frac{1}{3}$; head $3\frac{2}{5}$ to $3\frac{1}{2}$, width $2\frac{1}{4}$ to $2\frac{1}{3}$. Snout $2\frac{1}{8}$ to $2\frac{1}{6}$ in head from upper jaw tip; eye 6 to $6\frac{3}{4}$, $2\frac{1}{5}$ to $2\frac{4}{5}$ in snout, greater than interorbital; maxillary reaches $\frac{4}{5}$ to eye in young to $\frac{1}{5}$ in eye with age, length $2\frac{3}{4}$ to $2\frac{7}{8}$ in head from snout tip; 2 to 4 pairs of strong recurved upper canines anteriorly, pair of strong recurved canines at front of lower jaw; interorbital $7\frac{1}{8}$ to $7\frac{1}{3}$ in head from snout tip, level. Single gill raker at angle of gill arch, $\frac{1}{4}$ of eye.

Scales 122 to 126 in lateral line to caudal base and 6 to 8 more on latter; 9 or 10 above, 9 to 11 below, 40 to 43 predorsal.

2816

Scales with 29 to 31 basal radiating striae; circuli fine.

D. V or VI — I, 8, I or I, 9, I, first spine 3 to $3\frac{1}{2}$ in total head length, first branched ray $2\frac{7}{8}$ to 3; A. II, 9, I, first ray $2\frac{7}{8}$ to 3; caudal $1\frac{7}{8}$ to 2, well forked; least depth of caudal peduncle $4\frac{7}{8}$ to 5; pectoral $2\frac{1}{4}$ to $2\frac{2}{3}$; ventral $3\frac{1}{4}$ to $3\frac{2}{3}$.

Gray above or down till level with lateral line, also head above similar. Below silvery white. Dorsals and caudal pale brown, other fins whitish.

2817
A. N. S. P., three examples.
Victoria. Mrs. Agnes F. Kenyon.
Length 407 to 475 mm.

Sphyraena nigripinnis Schlegel ²⁸¹⁸

Sphyraena nigripinnis Schlegel, Fauna
Japonica, Poiss., pts. 2-4, p. 34, pl. 13,
fig. 1, 1843 (type locality, Japan).
— Bleeker, Verh. Batavia. Genoot.
(Nal. Ichth. Japan), vol. 25, p. 10, 1853
(reference). — Günther, Cat. Fish.
Brit. Mus., vol. 2, p. 338, 1860 (copied).
— Jordan and Snyder, Annot. Zool.
Japon., vol. 3, p. 61, 1901 (reference).
— Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 111, 1913
(reference). — Anonymous, Illustrat.
Jap. Aquat. Plants Animals, vol. 1,
pl. 21, fig. 3, 1931.

1405
13133, Polloc, Mindanao. May 22,
1908. Length 203 mm.

8013 and 12059. Port Bomalucan,
Marinduque Island. February 23, 1909.
Length 217 to 302 mm.

6553, 6566, 6567. Port Maricaban,
southern Luzon. July 21, 1908. Length
276 to 393 mm.

[S. 1684.] Rapurapu Island. June
22, 1909. Length 68 mm.

8257. Reefs of southern Luzon, Mindanao.
February 26, 1908. Length 156 mm.

14780, 16877, 16878. Sablayan, Mindoro.
December 12, 1908. Length 160 to 227 mm.

{ 22503. Romblon. March 26, 1908.
(Length 102 mm. [S. 471.]

2819

Depth 6; head $3\frac{1}{5}$. Snout
 $2\frac{1}{3}$ in head from snout tip; eye
 $5\frac{1}{5}$, $2\frac{1}{4}$ in snout; maxillary
reaches $\frac{7}{8}$ to eye, length $2\frac{2}{5}$ in
head from snout tip; 2 pairs of
upper canines and long recurved
symphyseal, lower jaw teeth
recurved; interorbital low;
preopercle edge nearly forms
right angle.

Scales 115 in lateral line.
D. V — I, 8 or 9, second spine
3 in total head, first ray $2\frac{7}{8}$;
A. I, 9, I, first ray $2\frac{3}{4}$; caudal
 $1\frac{2}{3}$, little emarginate behind;
least depth of caudal peduncle 4;
pectoral $2\frac{4}{5}$, not reaching spinous
dorsal; ventral $3\frac{1}{8}$.

Bluish green above, whitish
below. Dorsals and caudal with dark
gray. Size not given. (Fisheries Society of Japan.)
Japan.

2820

Sphyraena helleri Jenkins

Sphyraena helleri Jenkins, Bull. U.
S. Fish Comm., vol. 19, p. 387, fig. 1,
1899 (1901) (type locality, Honolulu);
vol. 22, p. 438, 1902 (1903) (Honolulu).
— Jordan and Evermann, Bull. U. S.
Fish Comm., vol. 23, pt. 1, p. 142, fig.
51, 1903 (1905) (Honolulu; Hilo).
— Jordan and Seale, Bull. Bur.
Fisher., vol. 25, p. 219, 1905 (1906)
(reference). — Jordan and Snyder,
Copeia, no. 112, p. 82, nov. 20, 1922
(Hawaiian Islands).

Genus Cromileptes Swainson.

Cromileptes Swainson, Nat. Hist. Animals, vol. 2, 1839, p. 201. Type Serranus altivelis Valenciennes, designated by Bleeker, Arch. Néerl. Sci. Nat. Harlem, vol. 11, 1876, p. 257.

Serranichthys Bleeker, Nat. Tijds. Ned. Indie, vol. 8, 1855, p. 344. Type Serranus altivelis Valenciennes, monotypic.

Body strongly compressed. Mouth large, protractile. Maxillary exposed, with supplemental bone. Teeth in jaws in broad bands, villiform, inner depressible and hinged basally; teeth on vomer and few on palatines. Tongue smooth. Hind nostril large crescentic slit, placed vertically. Preopercle serrated. Opercle with 2 spines. Gill membranes separate. Pseudobranchiae present.

Sphyræna japonica (not Schneider 1801)

Cuvier, Hist. nat. Poiss., vol. 3, p.

354, 1829 (type locality, Japan).

— Bleeker, Verh. Batavia. Genoot.

(Nat. Ich. Japan), vol. 25, p. 10,

1853 (reference); Act. Soc. Sci.

Ind. Néerl., vol. 1, no. 3, p. 3, 1856

(Manado); Verh. Batavia. Genoot.

(Nat. Ich. Japan), vol. 26, pp. 4, 67, pl.

3, fig. 2, 1857 (Nagasaki); Act. Soc.

Sci. Ind. Néerl., vol. 3, no. 3, p. 5,

1857-58 (Japan). — Günther, Cat.

Fish. Brit. Mus., vol. 2, p. 338, 1860

(copied). — Jordan and Snyder,

Annot. Zool. Japon., vol. 3, p. 61, 1901

(reference). — Snyder, Proc. U.S.

Nat. Mus., vol. 42, p. 409, 1912 (Tokyo).

— Weber and Beaufort, Fish. Indo Austral.

Archip., vol. 4, p. 225, 1922 (Japan).

p. 111, 1913 (reference) von

Sphyræna japonica (not Schneider 1801)
Cuvier, Hist. nat. Poiss., vol. 3, p.
 354, 1829 (type locality, Japan).
 — Bleeker, Verh. Batavia. Genoot.
 (Nat. Ich. Japan), vol. 25, p. 10,
 1853 (reference); Act. Soc. Sci.
 Ind. Néerl., vol. 1, no. 3, p. 3, 1856
 (Manado); Verh. Batavia. Genoot.
 (Nat. Ich. Japan), vol. 26, pp. 4, 67, pl.
 3, fig. 2, 1857 (Nagasaki); Act. Soc.
 Sci. Ind. Néerl., vol. 3, no. 3, p. 5,
 1857-58 (Japan). — Günther, Cat.
 Fish. Brit. Mus., vol. 2, p. 338, 1860
 (copied). — Jordan and Snyder,
 Annot. Zool. Japon., vol. 3, p. 61, 1901
 (reference). — Snyder, Proc. U.S.
 Nat. Mus., vol. 42, p. 409, 1912 (Tokyo;
 Kagoshima). — Jordan, Tanaka, Snyder,
 Journ. College Sci. Tokyo, vol. 33,
 p. 111, 1913 (reference). — Fowler,

minute, teeth on
denticles.
Gill rakers 6 + 5, short tubercles, $2\frac{1}{4}$

Nat. Hist.
Kagoshima
Japan
p. 111, 19

doubtfully reports an example
1779 mm. long, stuffed, in the
British Museum, from West Africa.
Until more secure evidence from
that region is forthcoming it seems
best to us to consider its distribution
Indo-Pacific. The species has not
previously been reported from the
Philippines.

6316. Cavite market. June 27, 1908.
Length 410 mm.

9362. Cebu market, Cebu. August
25, 1909. Length 264 mm.

6298. Manila market. June 12, 1908.
Length 237 mm.

1421. Makassar market. December
22, 1909. Length 330 mm.

Proc. Acad. Nat. Sci. Philadelphia,
vol. 77, p. 211, 1925 (Natal). —

Fowler and Ball, Bull. Bishop
Mus., no. 26, p. 11, 1925 (Johnston
Island). — Fowler, Mem. Bishop
— Barnard, Ann. South Afric. Mus.,
vol. 21, pt. 2, p. 1024, October 1927 (note).

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vol. 6, p. 256, 1908-11 (type locality,
Natal); Ann. Durban Mus., vol. 1,
no. 4, p. 318, 1917 (reference).

2 1/8 to 3 1/2, broad, slightly stepped
or concave; freehand edge with very

mus.,
Island
mus.,
Johnst
Sh...

caudal peduncle $3\frac{2}{5}$ to $3\frac{2}{3}$; pectoral $1\frac{4}{5}$ to $1\frac{7}{8}$; ventral $2\frac{1}{3}$ to $2\frac{1}{2}$.

Deep grayish dusky, more or less inclined to blackish on back and whitish below. Sides variegated with obscure dusky mottlings. Diffuse mottlings and blotches of head becoming distinct on sides. Body below soiled with darker grayish or dirty gray markings. Interopercle and lower edge of preopercle with large blackish brown blotch. Vertical fins silute brownish yellow, marked with black spots or blotches. Paired fins bright lemon yellow, variably spotted and blotched with black.

Zanzibar, Natal, Mauritius, Seychelles, India, East Indies, Formosa, Queensland, Micronesia. Boulenger

2823

Aphyraena acutipinnis Day

Aphyraena acutipinnis Day, Fishes of India, pt. 2, p. 342, pl. 79, fig. 1, 1876 (type locality, Sind, India); Fauna British India, Fishes, vol. 2, p. 336, 1889 (type). — Boulenger, Proc. Zool. Soc. London, p. 240, 1889 (Muscat). — Regan, Ann. Durban Mus., vol. 2, p. 77, 1917-20 (Natal). — Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 313, pl. 12, fig. 3, June 1925 (Natal).

Klunzinger gives the color of his
Anthias (Pseudanthias) taeniatus
as dark shining red. A narrow
white streak from the maxillary
to below the eye and the pectoral base.
On body each side 3 broad white
longitudinal bands, 1 along dorsal
base, second begins before nape
and extends from the gill opening
along middle of side to the tail.
A third light band extends along
side of belly, from the head to the
anal. Fins red, ventral edge
blackish. Caudal with red cross
band.

6904 and 6905 [1949 and 2000]. Lunawan
and Si Lamil Islands, Borneo. September
26, 1909. Length 89 to 125 mm.

Sphyraena natalensis Von Bonde,
Fishes. Marine Surv. South Africa,
Spec. Rep. No. 1, p. 10, pl. 3, fig. 2,
1922 (1924) (type locality, off
Natal, in 19 fathoms, station 299).

38

Preorbital with cluster of moderate tubercles, 4 or 5 series transversely; top of head and interorbital covered with minute, close-set, feeble, granule-like pearl organs, absent where skin rubbed.

D. III, 16, I to III, 18, I, first branched ray $2\frac{2}{3}$ to 3 in combined head and body to caudal base; ^{caudal $2\frac{1}{2}$ to $2\frac{3}{5}$} A. III, 5, I, first branched ray 1 to $1\frac{1}{5}$ in head; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{2}$; pectoral $1\frac{1}{10}$ to $1\frac{1}{6}$, rays I, 17; ventral I, 8, fin 1 to $1\frac{1}{4}$ in head.

Body dark gray brown or with slate tinge. Each scale with dark spot and trace of yellow spot posteriorly on scale exposure. Iris slate gray.

Depth $7\frac{3}{8}$ to $8\frac{1}{5}$; head $2\frac{3}{4}$ to $2\frac{7}{8}$,
 width 3. Snout $2\frac{1}{10}$ to $2\frac{1}{4}$ in
 head from snout tip; eye $5\frac{1}{3}$
 to $7\frac{1}{4}$, $2\frac{2}{5}$ to $3\frac{2}{3}$ in snout,
 greater than ^{to subequal with} interorbital;
 maxillary reaches $\frac{4}{5}$ in snout,
 expansion 2 in eye, length $2\frac{2}{5}$
 in head from snout tip; lower
 teeth slightly inclined back and
 single backward projecting symphyseal
 canine; interorbital $4\frac{3}{4}$ to 6, low;
 preopercle edge obtuse. Single
 lanceolate gill raker in angle
 of gill arch.

Scales 110 to 125 in lateral
 line to caudal base and 5 to 8
 more on latter; 12 above, 12 below,
 35 predorsal forward to occiput.
 Scales ^{with} 40 to 42 basal striae;
 circuli fine.

57 examples. Masiput, Mindanao Island. August 1, 1909. Length 28 to 57 mm.

2 examples. Pandanon Island, between Cebu and Bohol. March 23, 1909. Length 43 to 46 mm.

7 examples. Port Galera, Mindoro. June 9, 1908. Length 28 to 38 mm.

4 examples. Port Matalvi, Luzon. November 23, 1908. Length 37 to 51 mm.

28 examples. Port San Vicente, off northern Luzon. November 18, 1908. Length 32 to 51 mm.

23161, 23162. Puerta Princesa, Palawan Island. April 5, 1909. Length 45 to 47 mm.

2 examples. Reefs south end of Tumindao Island, Tawi Tawi Group, Sulu Archipelago. February 26, 1908. Length 45 to 47 mm. [319.] male with buccal ova.

D. V - I, 8, I, second spine $3\frac{3}{8}$
 in total head length, first
 branched ray $3\frac{1}{2}$; A. I, 8, I, first
 branched ray $3\frac{2}{5}$; caudal $1\frac{2}{3}$,
 sharply forked; pectoral $2\frac{1}{2}$;
 ventral $3\frac{2}{5}$.

Ventral brown on back,
 sides and below whitish. Dorsals
 and caudal grayish, paired fins
 and anal white.

Natal, East Indies, Formosa,
 Japan, Polynesia, Hawaii.

1 example. Below mouth Mindanao River, Cotabato, Mindanao. May 20, 1908. Length 46 mm.

15305. Busin Harbor, Burias Island. March 8, 1909. Length 38 mm.

16 examples. Canimahala Bay, Luzon. March 11, 1909. Length 33 to 49 mm. males with buccal ova.

21 examples. Cataingan Bay, Masbate Island. April 18, 1908. Length 21 to 52 mm.

23168. Cebu market. September 3, 1909. Length 50 mm.

[D. 5174] Jolo Light, E. 2.6 miles ($6^{\circ} 03' 45''$ N., $120^{\circ} 57'$ E.), vicinity of Jolo. In 20 fathoms. March 5, 1908. Length 44 mm. 1 example.

12 examples. Mansalay, Mindoro Island. June 4, 1908. Length 40 to 57 mm.

5 examples. Mati, Pujada Bay, Mindanao. May 15, 1908. Length 27 to 50 mm.

A. N. S. P., No. . Natal,
South Africa. 1922. H. W. Bell
Harley. Length 236 mm. As
Sphyraena japonica!

A. N. S. P., No.
Islands.

Hawaiian
Length 591 mm.

peritoneum). Also usually a
pale brown spot at middle of
pectoral base.

India, East Indies, Philippines.